

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

-----X
MALIBU MEDIA, LLC,
Plaintiff,
-against-
JOHN DOE, subscriber assigned IP
address 98.116.160.61,
Defendant.
-----X

: CV-15-3504
: US Courthouse
Central Islip, NY
:
:
April 20, 2016
9:30 a.m.

TRANSCRIPT OF HEARING
BEFORE THE HONORABLE STEVEN I. LOCKE
UNITED STATES MAGISTRATE JUDGE

APPEARANCES:

For the Plaintiff: THE JAMES LAW FIRM
445 Hamilton Avenue, Suite 1102
White Plains, New York 10601
BY: JACQUELINE M. JAMES, ESQ.

For the Defendant: LAW OFFICES OF CHEJIN PARK, PC
3520 147th Street, 2C
Flushing, New York 11354
BY: CHEJIN PARK, ESQ.

Official Court Reporter: Ellen S. Combs, CSR
Paul Lombardi, CR
100 Federal Plaza - Suite 1180
Central Islip, New York 11722
(631) 712-6107

Proceedings recorded by mechanical stenography
Transcript produced by CAT

Ellen S. Combs, CSR
OFFICIAL COURT REPORTER

1 (The following took place at 9:32 a.m.)

2 THE CLERK: Calling case CV-15-3504, Malibu
3 Media, LLC vs John Doe.

4 Counsel, state your appearances on the record.

5 MS. JAMES: Good morning, your Honor. My name
6 is Jacqueline M. James, and I'm here on behalf of the
7 plaintiff Malibu Media.

8 MR. PARK: Good morning, your Honor. My name is
9 Chejin Park and I'm the attorney for the defendant, John
10 Doe defendant.

11 THE COURT: Good morning. Please be seated.

12 We are here finally for a motion hearing, trying
13 to moving things along again.

14 Before we get to that I have a motion in limine,
15 a letter motion from the defendant dated April 18.

16 I also have a response from the plaintiff,
17 docket entry 29.

18 I understand the basis for the motion.

19 Mr. Park, do you want to add anything or just go on the
20 paper?

21 MR. PARK: Go on the paper.

22 THE COURT: Same?

23 MS. JAMES: Same, your Honor.

24 THE COURT: All right. Here is where we are on
25 this.

1 It was the Court's intention that you
2 communicate something to the defendant, even if it was
3 that we are going with the experts's declarations that we
4 submitted. And then I recall that I said, if you're going
5 to substitute one of the persons from Germany for another
6 one of the people who gave a declaration, but they would
7 stay within the parameters of the declaration, that is
8 fine, but you needed to tell Mr. Park that.

9 It appears that you did not. However, I don't
10 think that is a basis to bar the testimony. The sum and
11 substance of it is I think the plaintiff is going to
12 essentially prove what was submitted on the papers with
13 clarification.

14 Is that correct, Ms. James?

15 MS. JAMES: It is, your Honor.

16 And we apologize. We think that we docketed that,
17 that we submitted that written statement to Mr. Park
18 identifying the witnesses. And that was a misreading or a
19 mis-docketing on our part and we apologize.

20 THE COURT: Okay, that is fine. I just wanted
21 Mr. Park to have enough notice so he can conduct effective
22 cross-examination.

23 What I am prepared to do, Mr. Park, is one of
24 the clarifications being you only received it yesterday on
25 the 18th, is we're going to go ahead with the hearing. If

1 you need a break to sort of go over that declaration and
2 continue this tomorrow so that you can have an evening to
3 do that, to prepare, I will allow that. All right? But
4 let's go and see how far we get.

5 Does that make sense?

6 MR. PARK: Yes, your Honor.

7 But you know, I don't need that. I have
8 reviewed that declaration last night.

9 THE COURT: Okay. I thought you might say
10 something like that. That's fine. But let's just move
11 along.

12 Also, what we're going to do is, we have a court
13 reporter here, so it is my suggestion that you get the
14 transcript when we're done. I'm going to ask you to
15 submit; it could be a letter, it could be a memo, whatever
16 you think is appropriate. We'll talk about that a little
17 more at the end.

18 The reason I say that is, you're free to, to
19 make an opening statement. You don't have to. There is
20 no jury here. And we can go straight to the witnesses.
21 But I'll let you do whatever you want.

22 So we're all good to go, Ms. James?

23 MS. JAMES: Yes.

24 THE COURT: Mr. Park?

25 MR. PARK: Yes.

1 THE COURT: All right.

2 MS. JAMES: Your Honor?

3 THE COURT: Yes.

4 MS. JAMES: I don't believe we need to do an
5 opening statement. I think that we have all had a chance
6 to review your transcript from our hearing on this matter.
7 And now you have asked the plaintiff to bring witnesses to
8 discuss the technology used in the monitoring, and also to
9 address the University of Washington 2008 paper that was
10 cited today in Mr. Park's paper.

11 And unless you would like me to give you more --
12 would you like me to talk about the details of the actual
13 --

14 THE COURT: No, you can't put the witnesses on.

15 MS. JAMES: I wanted to make sure if there was
16 anything you wanted in the way of background.

17 The plaintiff would like to call Michael Patzer
18 to the stand.

19 **MICHAEL PATZER**

20 called as a witness, having been first duly sworn,
21 was examined and testified as follows:

22 THE CLERK: Please state your named for the
23 record.

24 THE WITNESS: Michael Patzer, PA-T-Z-E-R.

25 THE COURT: Be seated.

Patzer - Direct/James

6

1 Mr. Patzer, I'm just going to ask you to keep
2 your voice up and use the microphone. The acoustics here
3 are terrible. Okay?

4 THE WITNESS: Better now?

5 THE COURT: All right, Ms. James?

6 MS. JAMES: Thank you.

7 DIRECT EXAMINATION

8 BY MS. JAMES:

9 Q Can you hear me?

10 THE COURT: If you want you can walk around, but
11 keep your voice up. And you can also use the lectern.

12 MS. JAMES: Okay.

13 BY MS. JAMES:

14 Q Good afternoon.

15 May I ask you your educational background,
16 please?

17 A I graduated high school in 1999.

18 THE COURT: A little louder, Mr. Patzer.

19 A I graduated high school in 1999.

20 Q And what is your profession since 1999?

21 A I'm working in the IT business. And I'm a senior
22 assistant architect.

23 Q And who are you a senior assistant architect for, the
24 name of the company?

25 A Excipio.

Patzner - Direct/James

7

1 Q And do you have any formal training for this
2 position?

3 A When I first started I'm self-employed and I had no
4 training at all, just teaching myself.

5 Q And did you use publicly available information? How
6 did you go about training yourself?

7 A I used the Internet books, and just experience.

8 Q And how long have you worked in the IT business?

9 A After I graduated high school, so it's about 17 years
10 now.

11 Q And are you still currently working for Excipio?

12 A Yes.

13 Q Can you please tell me your involvement in designing
14 the monitoring system used in this case?

15 A I planned, designed, implemented and all-around
16 monitored the software which was used for the for this
17 case.

18 Q And how long ago did you design that software?

19 A It took about one year to design it, and program it.
20 And I was not the programmer, I just I did the planning
21 and maintenance and did various programs working on it.

22 Q And do you remember the year, would that be about
23 2008?

24 A Yes. Well we started developing it around 2008.

25 Q And is Malibu the client?

Patzer - Direct/James

1 A Yes. It's indirect client because IPP is the client,⁸
2 and Malibu Media is the client of IPP. I'm not involved
3 in contractor anything like that. I'm just engineer
4 background.

5 Q But do you provide monitoring services for Malibu?

6 A Yes.

7 Q And can you describe how your monitoring software
8 works?

9 A Yes.

10 Starts out with a list of titles, of movie
11 titles the client gives us.

12 Q So is it accurate that each client provides you with
13 a list of their copyrighted materials to monitor?

14 A Yes, that's correct, yes.

15 Q And tell me what the next step is in the monitoring?

16 A The next step is that we crawl the Internet for the
17 titles on the well-known BitTorrent sites.

18 Q And sir, you used the word, crawl. Could you
19 describe that for us?

20 A It's a search of the Internet on well-known
21 BitTorrent pages and for torrent files which match to the
22 titles of the works of the clients.

23 Q And can you please explain the term BitTorrent sites?

24 A Sites like Pirate Bay.

25 Q Hold up. I think for the court reporter, could you

Patzer - Direct/James

9

1 spell Pirate Bay?

2 A It's like P-I-R-A-T-E, B-A-Y.

3 Q And can you describe to the best of your
4 understanding the purpose of BitTorrent sites like Pirate
5 Bay?

6 A Yes.

7 A list of mainly illegal copyrights, protected
8 material. And the reason for the pages is to just share
9 it and to just provide service that they can easily
10 download copyright protected material from the network.

11 Q And when you say the purpose of the site is to allow
12 the sharing of, do you mean the copyright protected
13 material hosted on the site?

14 A No. It's just BitTorrent files, and the torrent
15 files refer to the content and unique torrent file to
16 download the related content which is actually the movie
17 or the music or just the CD music.

18 Q We know that normal conversation is a little faster,
19 but just so you know the court reporter is charged with
20 the duty of taking down every one of our words
21 simultaneously. So we have to ask you to slow down if
22 it's okay with you.

23 A Okay.

24 Q Thank you.

25 And when you receive a list of Malibu Media's

Patzer - Direct/James

10

1 copyrighted material, do you monitor BitTorrent sites to
2 see where they are available?

3 A Yes.

4 Q And then tell me the next step after that
5 identification process.

6 A After that we download the related content of the
7 torrent files, and there are always two independent
8 persons who view or listen to the content of the torrent
9 file and compare it to the original work we get provided
10 from the client.

11 So there are two independent persons working
12 separately. And they verify initially that's the same
13 content our client has provided to us.

14 Q Sir, if I may ask you to just break that down a
15 little bit.

16 So is it accurate that you first identify by,
17 let's say Malibu Media's individual movie title, the
18 actual BitTorrent information.

19 Is that correct?

20 A Yes, that's correct.

21 Q And then you download it, download that BitTorrent
22 information.

23 Is that correct?

24 A Yes.

25 Q And do you somehow save or preserve that information?

Patzer - Direct/James

11

1 A Yes. We always store it on YORM files.

2 Q And if you don't mind, can I please ask you to
3 explain to us what a YORM file is?

4 A It's, it means a YORM reads many, and it means the
5 data cannot be modified after it has written to that
6 volume. So it's basically like a DVD. You can just write
7 it once. But we can do it as much as we want. And the
8 reason for doing that is to prove that the data has not
9 been modified as it has been written.

10 Q So is it accurate that once the data is collected
11 into the YORM file --

12 A It's a tape. It's like a video.

13 Q So, I'm sorry, a YORK drive.

14 Is that correct?

15 A Yes.

16 Q Is it true that that information is preserved and
17 it's not offered or modified in any way?

18 A That's correct.

19 Q And is there any kind of verification with that drive
20 when that information is collected and preserved? Is
21 there any date or time?

22 A Sorry. Can you just repeat the question?

23 Q Yes, I apologize.

24 After that information is preserved, is there a
25 way to look at that information and determine when it was

Patzer - Direct/James

12

1 preserved?

2 A Yes. You can always read from the tape drive. And
3 there is also government issued time stamp by software.
4 It's not like a real stamp. And it proves that the data
5 has actually been written at that time when it was
6 written.

7 Q And when you say the government date stamp, can you
8 elaborate? Could you explain how that is?

9 A It's issued by the German government D-TRUST. It's
10 like D and then trust. And you can always get in contact
11 with them and show them the time stamp file, and they will
12 say, yes, it has been written at the time indicated.

13 Q So is it accurate that you, neither you or anybody
14 working with your company is the one that actually stamped
15 that?

16 Is that correct?

17 A It's the software that stamps it.

18 Q And that's regulated and operated by the German
19 government, not your individual corporation, correct?

20 A Yes, that's correct.

21 Q And you use that in order to verify for third parties
22 that it was actually collected on a date and time.

23 Is that correct?

24 A Yes, that's correct.

25 Q Sir, after that file is preserved and collected, you

Patzer - Direct/James

13

1 mentioned a secondary verification process.

2 Is that correct?

3 A Yes, that's correct.

4 Q Can you describe how many individuals are involved in
5 that verification process?

6 A Two individuals.

7 Q And can you physically describe where they are
8 located?

9 A They are sitting in different offices so they don't
10 talk to each other about verification.

11 Q Do they do that on purpose?

12 A Yes.

13 Q What is the purpose of that segregation or
14 segregation of the verification?

15 A That they look at the content and don't talk to each
16 other about how they verified the contact.

17 Q And if you don't mind, can you physically describe
18 how they go about the verification process?

19 A They play the, if it's a video file they play the
20 video file next to the original content provided by the
21 client.

22 Q So in this particular case, would the verifier have a
23 copy of the Malibu Media copyright protected movie?

24 A Yes.

25 Q And would they have some sort of ability to view it

Patzer - Direct/James

14

1 on a screen?

2 A Yes.

3 Q And would they be able to compare it?

4 A Yes.

5 Q And they would be comparing it to the information
6 that was downloaded from the BitTorrent site, correct?

7 A Yes, that's correct.

8 Q And the objection, or their job assignment is to
9 visually and also I guess orally verify that the
10 information is the same.

11 Is that correct?

12 A That's correct.

13 Q And then at a different place and location there is a
14 second individual who goes into that verification process?

15 A That's correct.

16 Q And when they complete their work is there any way
17 to, I mean how do they communicate that it has been
18 verified?

19 A They click on a button and then sign an affidavit
20 that they have been verified the contents of it. Also
21 have to sign a document, a verification of a successful
22 verification.

23 THE COURT: Mr. Patzer, excuse me.

24 When you compare the files is it, I assume that
25 it's a complete video. Is the BitTorrent file also a

Patzer - Direct/James

15

1 complete video, or is it a segment of a video?

2 THE WITNESS: In this case it's a, we talk about
3 a complete video. And the information has not downloaded
4 from some specific client. The information has just
5 downloaded from pictorial network.

6 THE COURT: Right. From a BitTorrent in a
7 complete video?

8 THE WITNESS: Yes.

9 THE COURT: So if the video is an hour
10 and-a-half they are verifying, a person will sit for an
11 hour and-a-half with the two videos?

12 THE WITNESS: They just jump through because
13 they don't watch it the whole time.

14 THE COURT: So randomly they just fast forward
15 through it?

16 THE WITNESS: Yes. I never done it in person.
17 So, yes. But I expect that because it takes a lot of
18 time?

19 THE COURT: Okay.

20 BY MS. JAMES:

21 Q But when they do that, are they comparing similar
22 frames, if that is the appropriate word?

23 A Yes.

24 Q So they might randomly go through and pick a frame
25 and verify it.

Patzer - Direct/James

16

1 Is that correct?

2 A They go around to each video and compare it. So I
3 don't know how long they look at each video, because I'm
4 not involved in this process personally. But yes, they
5 just go through those videos.

6 Q But the intent is to go through it and take random
7 selections to make sure that the content in the entirety
8 is the same.

9 Is that correct?

10 A That's correct. It has always to be entirely, the
11 whole.

12 Q So, I'm sorry. I want to make sure I understand
13 this. But the goal is to always have them verify the
14 entire video.

15 Is that correct?

16 A That's correct, yes.

17 Q And after they sign this affidavit and have completed
18 this check, is this information stored anywhere?

19 A Yes.

20 Q Can you explain that storage process?

21 A Like I said, on the tape drive. But not the
22 verification documents, you mean or what? What do you
23 mean?

24 Q The verification, number 1, the verification
25 affidavit, is that stored somewhere?

Patzer - Direct/James

17

1 A Yes, I think in the office. I'm sorry, I'm not
2 involved if that so I don't know where it's stored, the
3 documents.

4 Q If in an individual case there became a dispute,
5 let's say a trial about whether or not there was, a
6 verification was accurate, could that affidavit and
7 supporting information be supplied?

8 A Yes.

9 Q Yes?

10 A Yes.

11 Q So it's stored for later use if necessary, correct?

12 A Yes, correct.

13 Q Would you describe the process that you just
14 described as indirect monitoring or direct monitoring?

15 A The monitoring starts after that process. The
16 process we talked about is just the verification. We also
17 start the downloading of that particular target.

18 Q So that means that after you have identified the
19 copyrighted material, that is the verification process?

20 A Yes. That's the verification before we start the
21 logging of that particular file.

22 Q Can I ask you, can I ask you if you if he ever
23 uploaded any of the data?

24 A No. That's not possible because we developed our own
25 software ourselves, and our software is not able to do

Patzer - Direct/James

18

1 that. There is no function in it. And it is completely
2 written by ourselves.

3 Q And so what was the purpose of making sure that you
4 couldn't upload the data?

5 A Because uploaded would be illegal, sharing data
6 copyrighted materials.

7 Q So if you uploaded it, it would be, is it correct
8 that it would be available to other BitTorrent users?

9 A Yes.

10 Q And the purpose of prohibiting the uploading
11 mechanism in the software was to make sure that you were
12 not ever sharing copyrighted material?

13 A That's correct, yes.

14 Q Is it true that the software is constantly joining
15 numerous swarms?

16 A Yes.

17 Q Can you describe what a swarm is?

18 A Can I have the question?

19 Q Can you tell us what a swarm is?

20 A Yes. A swarm is a group of BitTorrent clients or
21 BitTorrent nodes sharing the same content or same torrent
22 files.

23 Q And when you say BitTorrent clients, would that be
24 the same as peer-to-peer sharing?

25 A Yes. That is what is described. The word is used

Patzer - Direct/James

19

1 for BitTorrent peer-to-peer, because one peer connects to
2 another peer.

3 Q And once they connect do they share the information
4 and copyrighted material?

5 A Yes.

6 Q And how does that occur?

7 A When they connect they do a handshake to see if they
8 both talk about the same torrent, they both have the same
9 data and to exchange. So there is a hash value. It's
10 like a secret they both need to know to do this handshake.
11 And after that handshake they exchange various data about,
12 which is the content of the torrent file.

13 Q I'm just going to ask you to break down some of those
14 terms of art.

15 When you refer to the handshake, that is the two
16 peers connecting electronically.

17 Is that correct?

18 A That's correct.

19 Q And when you refer to torrent, does that mean the
20 actual sought after information?

21 A The what? I'm sorry, again?

22 Q The sought after information, sought after data or
23 sought after movie? The movie they're trying to retrieve?

24 A Yes.

25 Q Would you refer to that as the torrent information?

Patzer - Direct/James

20

1 A I only prefer the torrent content.

2 Q The torrent content.

3 So in our case that would be one individual
4 handshaking with another individual to see if they also
5 had Malibu Media torrent content.

6 Is that correct?

7 A That's correct.

8 Q And then you said in order for them to communicate
9 they have to share a hash. Hash?

10 A A hash means, it's a lot of digits, various digits.
11 And it's actually the fingerprint of the content of the
12 torrent file. It's like an imprint.

13 Q So like what they do is, they select the torrent
14 content they want. And then they have to verify amongst
15 each other that they both contain the information by
16 verifying that they each have the correct hash?

17 A That's correct.

18 Q Is it hash code, is that correct? Should I use the
19 word, code?

20 A Yes.

21 Q And so this exchange of hash codes, they open up the
22 content to each other.

23 Is that correct?

24 A Yes. After the handshake they confirmed that both
25 sides are talking about the same data.

Patzner - Direct/James

21

1 Q And that is important because the intent is to get
2 more of the torrent content that has been identified?

3 A Yes.

4 Q And they want to make sure that they're getting the
5 correct Malibu Media movie for example?

6 A Yes.

7 Q And then after that happens, how do they exchange
8 their information?

9 A One side requests data from the other side and also
10 vice versa.

11 Q And is it a give-and-take relationship?

12 A Yes, many that don't have to because there are many
13 peers out there. So that is not only one talking to one.
14 It's one talking to many, and many talking to many others.
15 So everybody is giving a little bit and getting a little
16 bit. And again has to hold torrent content.

17 Q And after this exchange, the torrent content between
18 the peers, the main peers, how does the actual movie
19 download in a way that you can read it in the proper form,
20 the proper sequence?

21 A The software places all the data in a proper
22 sequence. The BitTorrent software does that.

23 Q So the software actually puts together the puzzle?

24 A That's correct.

25 Q So ultimately, an accurately and successful download

Patzer - Direct/James

22

1 of a full movie is accurate so that a peer would be able
2 to watch the movie in its total?

3 A Yes.

4 Q And that is the intent?

5 A Yes.

6 Q And is it accurate that sharing information between
7 peers in a swarm -- let me ask you a question.

8 A swarm is many peers sharing information. Is
9 that correct?

10 A Yes.

11 Q And is it accurate that the more people that are
12 sharing an individual, for example Malibu Media title,
13 would that increase the speed of the downloading ability?

14 A Yes.

15 Q And is it generally true that more people join swarms
16 for more popular torrent content?

17 A Yes.

18 Q So for example, next week when Game of Thrones comes
19 out there will be big swarms trying to exchange that
20 information?

21 A Yes.

22 Q And once your software detects Malibu Media torrent
23 content being downloaded, how do you log that transaction?

24 A Can you just rephrase the question, what exactly you
25 mean?

Patzer - Direct/James

23

1 Q Yes.

2 Once you identify peers sharing Malibu Media
3 torrent content, and do you request that they also share
4 with you?

5 A Yes. We establish a connection to them. We do the
6 mentioned handshake.

7 Q And then?

8 A And after that handshake we request data from them.
9 And it's actually 16 kilobytes of data we download. And
10 we verify the content of this 16 kilobytes to verify what
11 we talked about before.

12 Q And you said once you establish a handshake, correct?

13 A Yes.

14 Q Then do you also exchange the hash code verification?

15 A Yes. We have to do this to successfully do the
16 handshake. It's part of the handshake.

17 Q It's part of the handshake?

18 A Yes.

19 Q Is it true that all BitTorrent content has a unique
20 and individual hash code?

21 A That's correct.

22 Q And is it also true that for a particular torrent
23 content or movie you will never, for different torrent
24 content or movie, you will never hear the same hash tag?

25 A That's correct.

Patzer - Direct/James

24

1 Q So they're individual identifications for the actual
2 content?

3 A That's correct. It's like an individual fingerprint
4 per person.

5 Q And can that be changed or in any way be modified?

6 A No, if you modify the data the fingerprint changes.

7 Q So if you modify the, in this case the Malibu Media
8 movie, it would generate a new hash code.

9 Is that correct?

10 A That's correct.

11 Q And how is that determined?

12 A A hash code, it's generated by the software. It's
13 algorithm, it's a mathematical algorithm which is
14 generated based on the content of the torrent file.

15 Q And it's not anything that you generate?

16 A No.

17 Q And it's not anything that an individual peer or
18 multiple peers can generate.

19 Is that correct?

20 A It's generated to create a torrent file from a video.

21 Q But I guess what I'm trying to ask is, once it is
22 created, this hash code, how can we be confident that
23 we're trading the same information once the hash codes are
24 verified?

25 A It's the reason of the hash code. If you modify

Patzer - Direct/James

25

1 data, that is a different hash code.

2 Q So any time you change any of the data you will
3 generate a new hash code?

4 A Yes.

5 Q Can you please describe to me how much information is
6 in 16 kilobytes?

7 A If you compare it with zeros, it's about 131,000 ones
8 and zeros in a fixed order. So it can be somewhere just
9 by luck. It's like that, 131,000 zeros and ones in a
10 fixed order.

11 Q And that is the amount of information that you
12 download before you start your verification process for
13 each one of the Malibu Media files?

14 A That's correct. That is the part of data we use for
15 verifying that it belongs to the torrent file verified
16 before.

17 Q And for an individual Malibu Media title, do you do
18 that, do you that 16 kilobytes download once or multiple
19 times?

20 A We do this every time we establish a connection to
21 the peer or to the infringer. And it's always randomly,
22 so it's not just always the same, but different parts in
23 random we pick from.

24 Q And when you say different parts, you mean different
25 parts of content?

Patzer - Direct/James

26

1 A That's correct.

2 Q And do you do it multiple times for a title?

3 A That's correct, yes.

4 Q And do you keep a record of how many times you're
5 able to download portions, 16 kilobyte portions of an
6 individual Malibu Media title?

7 A Yes.

8 We have to record it for that, and we also have
9 always the 16 kilobytes start on the previous mentioned
10 YORM tape drives.

11 Q So you can access that for an individual, yes?

12 A Yes.

13 Q And I won't do it now, but in this particular lawsuit
14 for each one of the infringements alleged you would have
15 that data to back up that?

16 A Yes.

17 Q That download of individual titles involved in this
18 case, correct?

19 A Yes.

20 Q Have you ever testified before in court proceedings
21 in the United States?

22 A Yes.

23 Q And where was that?

24 A It was in Philadelphia.

25 Q And do you remember the date?

Patzer - Direct/James

27

1 A Pardon? I'm sorry.

2 Q The date or generally?

3 A The date?

4 Q Yes, when that occurred?

5 A I think about three years or four years ago. I don't
6 remember the exact date.

7 Q And what was the subject matter of your testimony?

8 A Similar to here, to describe how our software works.

9 Q And your software works for Malibu Media, correct?

10 A Yes.

11 Q Can I ask you to explain what a PTAP file is?

12 A A PTAP file is actually a recording of the network
13 transaction. It's some kind of standard.

14 Q Can I ask you, in the beginning of your answer I
15 didn't hear you. You said it's a recording of the?

16 A Network transaction. So it's a communication between
17 both peers. It's comparable with a video recording of
18 both peers meeting, shaking hands, exchanging the data.

19 Q So when you actually go through that process on
20 behalf of Malibu Media with other peers to download part
21 of the Malibu Media torrent content, does that make a
22 PTAP?

23 A Yes. One PTAP contains many transactions. A PTAP is
24 just a format of how we store. And like I said PTAP is
25 standard in the network business.

Patzer - Direct/James

28

1 Q And is it the purpose of PTAP to verify that this
2 exchange has happened?

3 A Yes.

4 Q And does it literally videotape the exchange?

5 A Videotape is just like a sample. It's just a data
6 recording. You can't watch it like videotape. We need a
7 special program for it but any expert can open it in a
8 PTAP file and see the communication.

9 Q And once there is the creation of the PTAP file, do
10 you design that software, the PTAP?

11 A No. It's a standard software used in the IT
12 business.

13 Q So you purchase it, the standard software, and you
14 use it, correct?

15 A It's for the industry.

16 Q And if you gave it to an independent IT expert he
17 would be able to open this PTAP file and understand the
18 data in there.

19 Is that correct?

20 A Yes, that's correct.

21 Q And you maintain the files for your work on behalf of
22 Malibu Media to verify the monitoring process, correct?

23 A That's correct, yes.

24 Q And you recall the use of individual cases. You
25 could produce these PTAPS to an IT expert or opposing

Patzer - Direct/James

29

1 counsel if it was requested?

2 A Yes.

3 Q Sir, do you know what the term UTC time relates to?

4 A Yes. It stands for Universal Time -- what is the C
5 for? It's just an international time standard. I'm
6 sorry, I forgot about the last letter.

7 Q Okay. And I think I have it somewhere.

8 But do you find that it is internationally used
9 to have a consistent time stamp?

10 A That's correct. It's the zero time zone. All of the
11 time zones are based on the UTC time.

12 Q And when you generate your report to Malibu Media, do
13 you stamp the time and the date when the information,
14 their content was downloaded?

15 A Yes. We always use the UTC time mentioned.

16 Q And is it accurate, in other words is there any way
17 of verifying the downloading of the information and the
18 time stamping?

19 A Yes. We verify the time. We use information, log in
20 information by running two independent hardware time
21 servers. And they are using the GPS time. They have
22 antenna on the roof and they connect to GPS satellites to
23 verify the time is accurate. And if the time is off for a
24 hundred of a second, we just disregard the log and don't
25 use the log information.

Patzer - Direct/James

30

1 Q And you don't provide it to Malibu Media?

2 A No.

3 Q And you would not provide it to the customer?

4 A No, just drop off or discard it

5 Q Disregard it.

6 Sir, in preparation for today's hearing, did you
7 have a chance to read a University of Washington report by
8 a number of different authors?

9 A Yes.

10 MS. JAMES: And your Honor, this is the report
11 that was brought up in Mr. Park's motion and also
12 discussed at the last hearing. And I would like to hand
13 up a copy of it and ask him a couple of questions.

14 THE COURT: Sure. Show it to Mr. Park first.

15 MS. JAMES: Sure. I have extra copies if the
16 Court would like one.

17 THE COURT: I would like one, and give Mr. Park
18 one of whatever it is.

19 What is the number?

20 MS. JAMES: Plaintiff's Exhibit Number 1.

21 THE COURT: Okay.

22 BY MS. JAMES:

23 Q Do you have in front of you what has been marked as
24 Plaintiff's Exhibit Number 1?

25 A Yes.

Patzer - Direct/James

31

1 Q And can you please read the title of this article?

2 A It's called Challenges and Directions for Monitoring
3 peer-to-peer File Sharing Networks. Or, Why My Printer
4 Received a DMCA Takedown Notice.

5 Q And sir, from reading the article, is it accurate
6 that the article is reporting all the experiments that
7 were done in May of 2008?

8 A Yes.

9 Q But the article itself is not dated.

10 Is that correct?

11 A Sorry?

12 Q The article itself is not individually dated,
13 correct?

14 A No.

15 Q And can you explain for us the concept of indirect
16 detection?

17 A Yes.

18 Indirect detection means you can compare it to
19 the yellow pages. You just go out there, get the yellow
20 pages, and have all of the phone numbers.

21 Indirect detection is similar they use for
22 torrent. They get the yellow pages for a specific torrent
23 and get all the IP addresses for that specific torrent.

24 Q Okay. So let me ask you this question.

25 Is this article discussing the use of indirect

Patzer - Direct/James

32

1 monitoring systems?

2 A Yes.

3 Q And is it your understanding that the University of
4 Washington used an indirect monitoring system?

5 A Yes.

6 Q And as a result did they receive the, did they
7 receive DMCA notices?

8 A They said that, yes.

9 Q And can you tell us what the acronym DMCA is?

10 A I don't know what the D stands for.

11 THE COURT: Do you know what it means though?
12 What does it refer to?

13 THE WITNESS: It's a copyright infringement
14 takedown code. So you get a note that you have infringed
15 copyrighted material and you need to stop doing it.

16 THE COURT: Okay. Indirect monitoring is akin
17 to a yellow pages search. Would you explain that a little
18 more? I didn't understand what you said.

19 THE WITNESS: Indirect means they go out
20 trackers --

21 THE COURT: -- the data that goes out.

22 THE WITNESS: It investigates on that case, goes
23 out to a so-called trackers. And they are surfing the
24 Internet. And they ask them to give a list of IP address.
25 So possible persons who infringed the copyrighted material

Patzer - Direct/James

33

1 for specific torrent.

2 THE COURT: Okay. So the investigator, you're
3 saying has a torrent file that they're interested in
4 protecting?

5 THE WITNESS: Yes.

6 THE COURT: And they also have a yellow pages of
7 some kind.

8 What is the yellow pages? What, in your own
9 words? You said a server. You get a list of who used the
10 server. Where that server or the BitTorrent file was
11 located, or --

12 THE WITNESS: No. Inside the BitTorrent file
13 there is an address. They go there. There are multiple
14 addresses where you can go and ask them for a list of IP
15 addresses you can establish the connection to.

16 THE COURT: So a BitTorrent file you said, let's
17 just say is one IP address for ease of understanding.

18 THE WITNESS: Yes.

19 THE COURT: Would that IP address the
20 investigator goes to what?

21 THE WITNESS: The investigator decides this IP
22 address is sharing the content. He never talks to the IP
23 address.

24 THE COURT: And the investigator knows that
25 because of the BitTorrent file itself. Is that right?

Patzner - Direct/James

34

1 THE WITNESS: The torrent file refers to some
2 kind of index where he can get a list of IP addresses.

3 THE COURT: Okay, so the BitTorrent file is not
4 a specific IP address?

5 THE WITNESS: It refers to a server on the
6 Internet.

7 THE COURT: A server, it refers to a server?

8 THE WITNESS: Server, or a list of servers. And
9 they ask any of that servers if it's still available and
10 can contact them and they will provide you a list of the
11 IP addresses sharing the content --

12 THE COURT: Through that server.

13 THE WITNESS: Through that server, yes.

14 THE COURT: So the BitTorrent file is by a
15 server or multiple servers that has been located, and each
16 of those servers will have IP addresses contained in that.
17 And then the investigator can go from that list to the
18 server.

19 Is that right?

20 THE WITNESS: Yes, that is.

21 THE COURT: And that is what is called indirect
22 investigation?

23 THE WITNESS: Yes.

24 THE COURT: Okay.

25

Patzner - Direct/James

35

1 BY MS. JAMES:

2 Q And it's accurate from this article that we're
3 discussing here, University of Washington, that those,
4 that in this particular experiment that list of IP
5 addresses, that list in and of itself would result in a
6 DMCA takedown notification?

7 A Yes. In this scenario it resulted in a DMCA
8 takedown.

9 Q And I believe if I'm answering your Honor's question,
10 you said there was no exchange in the monitoring, the
11 indirect monitoring discussed in this article, other than
12 asking the server to provide the IP addresses. Is there
13 any other exchange or verification process?

14 A No.

15 Q So somebody in the indirect monitoring system, those
16 would takedown, once the servers provided them with the IP
17 address?

18 A They just get a list of possible sharing clients.
19 But it's not verified that any of the clients are sharing
20 the content. The tracker software is supposed to generate
21 random numbers just for the reason that you can't use the
22 list of IP addresses in court, because they use random
23 generated list to fake some result, and make a list of IP
24 addresses not reliable.

25 Q So in your opinion indirect monitoring physically

Patzer - Direct/James

36

1 that is being, as being used in the experiment discussed
2 in this article would not be reliable?

3 A No.

4 Q And that is because of the fact that the IP addresses
5 are not verified?

6 A That's correct.

7 Q And when you say not verified, you mean there is no
8 verification that those IP addresses engaged in
9 downloading of the copyrighted material in question.

10 Is that correct?

11 A That's correct.

12 Q And is there existing in software monitoring a system
13 that you use?

14 A No. This is basically where our software starts.

15 Q What do you mean by that?

16 A When we have collected IP addresses we will connect
17 to every single IP address in the list. And we don't even
18 use this old tracker technology.

19 Q Did you say old tracker technology?

20 A Old tracker technology.

21 Q And if you don't mind, can you tell us what the old
22 tracking technology is? Are you referring to technology
23 they're discussing in this article?

24 A Yes.

25 It's described technology where fixed mentioned

Patzner - Direct/James

37

1 server in the torrent files, and they have to connect to
2 single servers out there and get the list -- of IP
3 addresses. That is what I would refer to as tracker
4 technology.

5 Q And you're saying this is old. And when you say old,
6 do you mean obsolete?

7 A It's still used, but we don't rely on that
8 technology. We don't use that.

9 Q And why don't you rely on that technology?

10 A Because it's containing a lot of false positive IP
11 addresses. And it's also quite slow because it's single
12 servers on the Internet, and they often just get taken
13 down by copyright holders to prevent copyright infringing.

14 Q So it's not accurate, and it's not an, it's also not
15 economical. In other words it doesn't work efficiently?

16 A Yes. It has to be replaced with newer technologies.
17 This article is eight years old.

18 Q And I'm going ask you to describe the difference
19 between your detection in a minute.

20 But in the article, when they talk about false
21 positives with indirect detection, can you describe what
22 they're referring to?

23 A They're referring to IP addresses appearing on the
24 lists which are not sharing content.

25 Q So although they somehow got on the list, they have

Patzer - Direct/James

38

1 not engaged in peer-to-peer BitTorrent sharing?

2 A That's correct.

3 Q And there is a discussion in the article about
4 reporting mis-reporting by trackers on behalf of malicious
5 users to frame an innocent IP address, correct?

6 A That's correct.

7 Q And you're free to look at it. I'm not expecting you
8 to memorize it, and free to reference at least my note ON
9 4.2 of the article. There's not a page number there?

10 Can you explain to me how a tracker using this
11 indirect monitoring system might be able to maliciously
12 frame an arbitrary IP address.

13 A Yes.

14 It's possible to register an IP addresses there
15 and pretend that this IP address is sharing content. To
16 compare it with yellow pages, I can call yellow pages and
17 tell them that some specific numbers, for example --
18 services.

19 Q And just to be clear, sir, when you're referring to
20 the yellow pages you're using that as an analogy.

21 Is that correct?

22 A Yes, that's correct.

23 Q You are not actually looking at a yellow book in this
24 particular instance?

25 A No.

Patzer - Direct/James

39

1 Q So explain to me why the technology that you used
2 could never result in such a falsified registration of
3 another person's IP address?

4 A Because we do a real connection. We do a handshake,
5 and we actually exchange data. We download data from
6 them. And so we can be sure that person or that IP
7 address has really shared that content we were looking
8 for.

9 Q And do you consider that method a direct monitoring
10 method?

11 A That's correct.

12 Q And sir, in the same subparagraph, 1.2, before it
13 talked about mistimed reports.

14 And can you explain to me why your software and
15 the storing of the information does not compose mistimed
16 reports?

17 A I mentioned before if you use the GPS time and verify
18 that the time is one hundred percent accurate with the GPS
19 time, and if the GPS time would be not accurate there
20 would be no indication.

21 Q So in a hypothetical, on that last page, the next
22 page about one individual going into the university coffee
23 shop and starting a BitTorn download, leaving and a
24 subsequent customer coming in, and having the date stamp
25 being erroneous because of a delay in the second IP

Patzer - Direct/James

40

1 address.

2 Could that hypothetical happen with the
3 technology that you use?

4 A No. Because it's accurate to a hundredth of a
5 second. So in this particular scenario you're talking
6 about 30 minutes.

7 Q So it would not be?

8 A It would not, cannot be happening with our software,
9 our technology.

10 Q And this concept discussed in the article, and is
11 that also the result of known connections between
12 monitoring servers and the alleged infringement?

13 A Yes.

14 That just talks about the use of IP addresses.
15 The list of IP addresses they get can be fake or spoof.
16 And since we don't rely on the list of IP address, we do a
17 connection, it's not possible to do a man-in-the-middle
18 there.

19 Q And when you use the word fake and spoofed in this
20 content, could you elaborate what those terms mean?

21 A It means just a fake IP address, somebody sends an IP
22 address which are not actually shared content.

23 Q And they would send it into the servers?

24 A Yes.

25 Q And are there mandates that peer-to-peer infringers

Patzer - Direct/James

41

1 and steps they take to try to avoid detection of the
2 infringement, of their infringement?

3 A Regarding this article they talk about blacklists.
4 So there are lists of potential copyright infringing
5 detection companies like Excipio. And they try to put
6 them on blacklists so that there is no direct connection
7 possible. So that we cannot do the direct connection and
8 get the data we need to prove it.

9 Q So in those cases the infringers, peer-to-peer
10 infringers are aware of the monitoring?

11 A That's correct, yes.

12 Q From your company?

13 A Yes.

14 Q And they try to evade detection.

15 Is that correct?

16 A Yes, correct.

17 Q And sir, under the section 6 of the article, Lessons
18 and Challenges, they talk about a more accurate approach,
19 correct?

20 A Correct.

21 Q And they talk about it as an industry standard
22 practice for monitoring suspected infringement by
23 downloading data directly from the suspected user and
24 verifying its content.

25 This is under paragraph 6.1, enforcement

Patzer - Direct/James

42

1 agencies?

2 A Yes.

3 Q Can you explain to me how you understand their
4 recommended procedure?

5 A That is actually what we are doing. We establish a
6 connection to the infringer and download some of the data
7 and verify that the data is actually the content of our
8 client.

9 Q So is it your understanding, or is it accurate that
10 this article eight years ago was recommending direct
11 monitoring and verification, correct?

12 A Correct.

13 Q And it's true that you have actually adopted this
14 exact procedure --

15 A That's correct.

16 Q Just let me finish, I'm sorry -- for direct
17 monitoring and directly verifying?

18 A Yes.

19 Q So is it fair to say or accurate to say that the ills
20 that were discussed, and the problems of false positives
21 that were discussed in the article, are related to the
22 indirect monitoring?

23 A That's correct.

24 Q And these issues are not something that present
25 themselves in the method that you use to directly monitor

Patzer - Direct/James

43

1 and verify?

2 A Correct.

3 Q Can you talk about, as the article does, again under
4 the 6.1 subtitle, the cost of direct identification. And
5 they also talk about the increased costs associated with
6 adopting a direct monitoring system.

7 Can you elaborate on some of those thoughts?

8 A That's correct.

9 It's very high costs compared to the indirect
10 monitoring. We run about 150 servers just to do the
11 log-in process for our client.

12 Q And so you don't actually have that many servers.

13 Is that correct?

14 A More than that. But just for that proposed we run
15 about 150.

16 Q And then there is the individual PTAPS that are
17 captured, correct?

18 A That's correct.

19 Q And then there is the two individual employees that
20 are assigned to the task of individually verifying each,
21 all of the titles and the cross-reference to the content,
22 correct?

23 A Correct.

24 Q And then there is also the collection and
25 preservation of all of the 16 kilobyte downloads, correct?

Patzer - Direct/James

44

1 A Correct.

2 Q And these numbers are preserved for each time they're
3 downloaded?

4 A Yes.

5 Q And it is indicated, the article is saying that while
6 monitors might not want to spend these extra expenses to
7 do it properly, that that is the safest way to move
8 forward?

9 A Yes.

10 Q Then is it true that -- then to cut off those safety
11 protocols?

12 A Yes.

13 Q And also to eliminate the false positives, the
14 spoofs, and you know, fake identities that were discussed
15 in the article relating to indirect monitoring?

16 A That's correct. We never have or had a false
17 positive.

18 Q Can you elaborate on that?

19 A We have been in many cases worldwide and with
20 customers worldwide, and there was never been proof of
21 false positives.

22 Also by individual software programs verifying
23 the actions each other software programs does. And thus
24 all of the PTAP recordings would depend on any from our
25 software programs, and always proof of our software is

Patzer - Direct/James

45

1 safe. And there was never an IP address in our list that
2 had not shared the content.

3 Q So you're saying at no time worldwide has it ever
4 been proven that any of the IP addresses that you have
5 indicated shared the content that the client asked you to
6 verify as being inaccurate?

7 A Yes.

8 Q Zero times?

9 A Correct.

10 Q And out of roughly how many?

11 A Hundreds.

12 Q Hundreds, must be more than hundreds?

13 A Cases at court.

14 Q Cases, okay hundreds of case at court?

15 A Yes.

16 Q And what is your estimate of how many IP addresses
17 have been collected and verified as downloading protected
18 material?

19 A Random numbers. I know we store about 200 million IP
20 addresses a day. So I don't know how many verified for
21 multimedia content.

22 Q But it is true that not in Malibu Media's case or in
23 other cases has it ever been proven or shown that your IP
24 addresses are incorrect?

25 A Correct.

Patzer - Direct/James

46

1 Q And when you say correct, you mean did not download
2 the relevant content being discussed in those proceedings?

3 A Yes.

4 Q Is that correct?

5 A That's correct, yes.

6 Q Can I ask you, why is it -- is it true that your
7 direct monitoring system would not misidentify somebody
8 using a hot spot or communal WiFi space?

9 A Sorry, the question?

10 Q Yes. Assume that somebody is in a WiFi hot spot.

11 A Yes.

12 Q And using a publicly available access to the
13 Internet.

14 A Yes.

15 Q How do we know that in the IP address that is
16 captured for your work on behalf of Malibu Media, that
17 those individual downloads are not happening in those
18 common spaces?

19 A It can happen in such spaces. But if you have a lot
20 of information, for example if we have a lot of loss of a
21 long time of peer talking about three or four months, it's
22 very unlikely that it's a person going to the same WiFi
23 spot and doing it there.

24 Q So what you're saying is, in an individual case, and
25 maybe I'll give you the case in a minute -- but that there

Patzer - Direct/James

47

1 is, it is not just one individual downloading that is
2 captured. It's over a certain duration of time and
3 multiple times.

4 Is that correct?

5 A That's correct.

6 Q And is there any other indication that the same IP
7 address or the same user, in other words that there is a
8 port or any other identifying factors that you could use?

9 A Yes. Various details like TCP ports and software
10 using or the software version of the software, or the
11 computer is using.

12 Q So when you talk about software users, do you mean
13 BitTorn software that they're using?

14 A Yes, there are various BitTorrent software out there.

15 Q So when you're tracking, downloading, you're able to
16 monitor and preserve a record of what BitTorrent software
17 is being used to do that download.

18 Is that correct?

19 A That's correct.

20 Q And can I ask you, do you understand that BitTorrent
21 software must be downloaded to an individual computer?

22 A Yes.

23 Q And it must be used in other words you have use the
24 BitTorrent software to get the contents, correct?

25 A Yes. You need to go to a web page, find a specific

Patzner - Direct/James

48

1 content you want to, click on it and start it in the
2 BitTorrent software to initiate the downloads and uploads
3 process.

4 Q And once you initiate that process, the download and
5 upload process, and I don't know if this is the proper
6 words -- is it fair to say that you opened your computer
7 to the monitoring?

8 A Yes, you joined the swarm.

9 Q Is that correct? I don't want to -- did you say,
10 yes, you joined the swarm?

11 A Yes.

12 Q And sir, when you join the swarm, is it accurate to
13 say that at that point you are, it is true that monitors
14 can see what information you're sharing?

15 A Yes.

16 MS. JAMES: And your Honor, may I show him a
17 second exhibit?

18 THE COURT: Sure.

19 MS. JAMES: And I'll show everybody else the
20 transcript.

21 THE COURT: Do you want first the exhibit in
22 evidence?

23 Mr. Park, any objection to placing in Exhibit 1?

24 MR. PARK: No.

25 THE COURT: All right, Exhibit 1 is in evidence.

Patzer - Direct/James

49

1 (Plaintiff Exhibit 1 in evidence.)

2 MS. JAMES: All right, this is Plaintiff's
3 Exhibit Number 2. Your Honor, I have handed the witness
4 Plaintiff's Exhibit Number 2, which is a printout of
5 Verizon's user guide and copyright alert program and
6 copyright statement.

7 THE COURT: Any objection, Mr. Park?

8 MR. PARK: No, your Honor.

9 THE COURT: All right, it will be in evidence.
10 (Plaintiff Exhibit 2 in evidence.)

11 THE COURT: Go ahead.

12 BY MS. JAMES:

13 Q Sir, you prepared for this particular case by
14 reviewing the court documents and specifically the
15 complaint in this case. And here the ISP provider was
16 Verizon, correct?

17 A Correct.

18 Q And I have shown you what is publicly available and
19 was drafted by Verizon. And does it discuss the different
20 user's notice, the prohibition against using it's servers
21 for peer-to-peer copyright infringement?

22 A Yes.

23 Q And what is that?

24 A It says it's illegal to share copyright material.

25 Q And does it also talk about the Digital Millennium

Patzer - Direct/James

50

1 Act and DMCA notification?

2 A Yes.

3 Q Protocol?

4 A Yes.

5 Q And does it give users notice that if infringement is
6 detected they may receive DMCA notices?

7 A Yes.

8 Q And with an accumulation of multiple DMCA notices
9 there might be steps taken against that individual
10 subscriber?

11 A That's correct.

12 Q Maybe slowing down and even actually terminating
13 their server, correct?

14 A Correct.

15 Q And if you go to the third page, there is a subject
16 title, Civil Subpoena Policy. And is Verizon giving
17 notice to its subscribers that it will not turn over their
18 identity unless there is a court order?

19 A Yes.

20 Q And does it actually instruct civil litigants that it
21 must have a court order before they will respond to a
22 subpoena, that it has to be a court-ordered subpoena?

23 A Yes.

24 Q And in your understanding, Verizon therefore has
25 given a subscriber public notice and prohibited them under

Patzer - Direct/James

51

1 their use, their permissible use contract, to engage in
2 peer-to-peer infringement on their network?

3 A That's correct.

4 MR. PARK: Objection.

5 Your Honor, Verizon, I think the witness is not
6 specialized in Verizon. He is not working for Verizon.
7 He has nothing to do with Verizon.

8 THE COURT: Sustained.

9 MS. JAMES: I'm using it as notice, your Honor.
10 Not for the truth of the matters asserted, but for notice
11 to subscribers of the procedure.

12 THE COURT: If that is the case then I think the
13 document speaks for itself. I don't think you need him to
14 read it to me.

15 MS. JAMES: Okay.

16 THE COURT: Is there a question? Ask the
17 question again.

18 BY MS. JAMES:

19 Q Is it your understanding from your professional
20 experience that subscribers are given notice by their
21 Internet service providers outlining what is a permissible
22 and impermissible use?

23 A Yes.

24 Q And is it your understanding that they're also
25 providing information and warning, and notice that

Patzer - Direct/James

52

1 copyright infringement through the Internet is not
2 permissible?

3 A Yes.

4 Q And to your knowledge are they also giving
5 information about procedures regarding copyright
6 infringement procedures?

7 A That's correct.

8 MS. JAMES: Your Honor, I understand the nature
9 of his objection. I don't know if he can speak more to
10 that.

11 THE COURT: That question was more. I think
12 Mr. Park's objection was to your question, was what
13 Verizon's practices were. He is not qualified to know
14 other than your document that you're showing him.

15 MS. JAMES: Hopefully that last line of
16 questioning is correct. Is that?

17 THE COURT: Well, Mr. Park didn't object, so --

18 MS. JAMES: Okay. And then I would ask if it's
19 appropriate, your Honor, to admit that?

20 THE COURT: Well, it is already admitted into
21 evidence. That is why, and he didn't object to that.

22 MS. JAMES: Okay. I don't have multiple copies
23 of docket entry number 1, which is the complaint in this
24 matter. I apologize for that.

25 But may I show the witness the complaint?

Patzer - Direct/James

53

1 THE COURT: You can show it to him.

2 Mr. Park, do you have a copy? Just so you can
3 follow along.

4 MS. JAMES: Your Honor, Mr. Park does have a
5 copy, but I don't have one for the Court.

6 THE COURT: All right.

7 MS. JAMES: I apologize.

8 Your Honor, I'm going to show the witness the
9 actual complaint with the exhibits in this case that was
10 filed in this case, docket entry number 1, filed on
11 6/16/2015, 15-CV-3504.

12 THE COURT: Any objection, Mr. Park?

13 MR. PARK: No, your Honor.

14 THE COURT: All right, Plaintiff's 3 in
15 evidence.

16 MS. JAMES: And for the record, that document
17 has been filed and is Plaintiff's Exhibit Number 5.

18 THE COURT: That is 5?

19 MS. JAMES: Five.

20 THE COURT: Okay, it's 5.

21 (Plaintiff Exhibit 5 in evidence.)

22 BY MS. JAMES:

23 Q Sir, have you had a chance to review the complaint
24 that is related to this lawsuit that we're here today for?

25 A Yes.

Patzer - Direct/James

54

1 Q And did you have a chance to, again did you review
2 that in preparation for today's testimony?

3 A Yes.

4 Q And sir, on the back of the complaint there are two
5 attachments. And the first attachment lists a number of
6 columns, correct?

7 THE COURT: I'm sorry, a number of?

8 BY MS. JAMES:

9 Q A number of columns?

10 A Yes.

11 Q And can you please describe for me what, Hit Date UTC
12 is?

13 A That's the date and time in UTC time zone when the
14 log-in connection appeared.

15 Q Okay. And when you say a log-in transaction
16 appeared, do you mean a log-in on behalf of Excipio, and
17 to an actual peer that documented a download?

18 A Yes. The date that an exchange happened with the IP
19 address here.

20 Q And where is the IP address listed?

21 A It's on the top of the document.

22 Q So is it accurate for each one of the Hit Dates UTC,
23 it relates to the same IP address?

24 A Yes.

25 Q And can you explain what a file hash refers to?

Patzer - Direct/James

55

1 A The file hash is the fingerprint of the torrent
2 content.

3 Q And is the file hash written in that column?

4 A Yes.

5 Q And is each file hash individual to the related
6 content?

7 A Yes.

8 Q And sir, on the left-hand side, where it says, Title,
9 can you please explain that reference?

10 A Title is actually the title of the work the client
11 provided. It's the movie title in this case.

12 Q So is this document depicting by title the time at
13 which the exchange download from Excipio and the IP
14 address occurred for the individual file hash?

15 A Yes.

16 Q And each one of those ledgers described that actual
17 exchange?

18 A Yes.

19 MS. JAMES: And I'm sorry, can I just approach
20 the witness for a second?

21 THE COURT: Yes.

22 BY MS. JAMES:

23 Q And sir, how many individual copyrighted titles are
24 depicted on that chart?

25 A 18.

Patzer - Direct/James

56

1 Q And when you look at the hit dates from the bottom to
2 the top, what is the first hit date?

3 A That's the 10th of February, 2015.

4 Q And what is the last one on the top?

5 A It's the 23rd of May, 2015.

6 Q 2000 what?

7 A 15.

8 Q So is it accurate that this particular IP address was
9 monitored over a number of months in order to create this
10 chart of multiple infringement being alleged?

11 A Correct.

12 Q And so it's from February --

13 A To May.

14 Q Is it roughly four and-a-half months?

15 A Yes.

16 Q And why do you, or why are you charged with the duty
17 to document multiple downloads over an extended period of
18 time?

19 A Sorry, again?

20 Q Is it purposeful that you are asked now to insure
21 that you are monitoring downloads of their copyrighted
22 material over an extended period of time?

23 A Yes, we constantly monitor.

24 Q And from this time it's a four and-a-half months time
25 period. Does that indicate to you that it was, the same

Patzer - Direct/James

57

1 computer was being used?

2 A Not based on this information. That I have more
3 information about each of the hits. I looked at this
4 information and it showed me that it's always been or has
5 to be the same computer system.

6 Q Has to be?

7 A Yes.

8 Q But this document showed you multiple downloads over
9 a four and-a-half month period, correct?

10 A Correct.

11 Q Does this document also show you that these downloads
12 were conducted by the same IP address?

13 A That's correct.

14 Q That's correct?

15 A Yes.

16 Q Okay.

17 THE COURT: Mr. Patzer, before I think you said
18 these downloads are all from the same IP address but not
19 necessarily from the same computer.

20 Is that right? Just the information on this
21 page.

22 THE WITNESS: Yes, it's the same.

23 THE COURT: But later you said that you did
24 subsequent work and determined that these hits all came
25 from the same computer.

Patzer - Direct/James

58

1 THE WITNESS: Yes.

2 THE COURT: Okay. Are we going to get to that?

3 MS. JAMES: Yes.

4 BY MS. JAMES:

5 Q And is there a document that would reflect that, sir?

6 A Yes.

7 Q And --

8 MR. PARK: Your Honor, that testimony is based
9 on his personal assumption I think.

10 THE COURT: So let's -- we'll get to it.

11 Let's see what the testimony is.

12 Is that the next page of the complaint that
13 reflects your subsequent work, Mr. Patzer?

14 Is that the next page? Look at the document.

15 THE WITNESS: It's here.

16 THE COURT: You were looking at the second to
17 last page of that document I believe. Is that correct?

18 THE WITNESS: Yes, Exhibit B.

19 THE COURT: You looked at Exhibit B. Before you
20 were looking at Exhibit A, weren't you? When you said
21 there are three columns.

22 THE WITNESS: It was Exhibit A.

23 THE COURT: Okay, and then you said for this IP
24 address you did subsequent work to identify that all the
25 hits came from one computer, right?

Patzer - Direct/James

59

1 THE WITNESS: Yes

2 THE COURT: Is that Exhibit B or something else?

3 THE WITNESS: Something else.

4 THE COURT: Okay, explain to me what the
5 subsequent work was that you did to determine that all of
6 the hits were to a single computer or computer system.

7 THE WITNESS: I was looking at the raw
8 information.

9 THE COURT: What kind of information?

10 THE WITNESS: Raw information.

11 THE COURT: R-A-W?

12 THE WITNESS: Yes.

13 THE COURT: The raw information. And it shows
14 additional information about the computer on the outside.
15 It shows the software version that was used?

16 THE WITNESS: The software version and also
17 shows the TCP port the software was using.

18 THE COURT: What is a TCP port?

19 THE WITNESS: A TCP port is like an extension
20 number if you compare with phone numbers.

21 THE COURT: So each computer would have it's own
22 TCP?

23 THE WITNESS: Every computer has about 65,000
24 ports. And when you install a BitTorrent software,
25 depending on the software it generates a port number. And

Patzer - Direct/James

60

1 it was always the same port number.

2 THE COURT: And that would be unique to that
3 computer, that port number?

4 THE WITNESS: Yes, the combination of the
5 content of the IP address, port number, and software
6 version is, relates to the same computer. It is more than
7 unlikely that a different computer shares the same content
8 with the same port using the same software.

9 THE COURT: Have you ever seen it happen that
10 there were different computers that, as a result of that
11 information.

12 THE WITNESS: No.

13 THE COURT: Always from your experience it has
14 been one computer that would have that data?

15 THE WITNESS: Yes, depending on the port number,
16 there are default port numbers out there. And if this is
17 one of these ports then it is not proven that it is
18 unique, because every software client for example not
19 using different software, using the same port every time.

20 THE COURT: Say that the again, the default
21 port?

22 THE WITNESS: Default port.

23 THE COURT: Was there another default port, or
24 you said there were two kinds of default ports?

25 THE WITNESS: And a random-generated port.

Patzner - Direct/James

61

1 THE COURT: Okay, so if you have a
2 random-generated port that would indicate to you that it
3 was from the same computer?

4 THE WITNESS: Yes.

5 MS. JAMES: And your Honor, may I please
6 approach the witness.

7 THE COURT: Yes.

8 BY MS. JAMES:

9 Q I show you Exhibit 3.

10 MS. JAMES: Your Honor, I have handed the
11 witness what has been previously marked as Plaintiff's
12 Exhibit Number 3.

13 And I provided that to the Court and opposing
14 counsel.

15 Q And sir, can you describe this document for us?

16 A Yes. It has the previously mentioned more detailed
17 information. And it also contains multiple transactions
18 per torrent or multiple data exchanges. It's about 90 to
19 100.

20 Q So to break that down for an individual title, first
21 of all this additional data, what would you call this
22 document? Is there a record you would use internally for
23 this?

24 A It's the log information. I call it a raw log
25 information because it's more detailed.

Patzner - Direct/James

62

1 Q Okay. So is this a -- first of all, this raw log
2 information relates to this case and the Malibu Media
3 copyrighted material at issue here, correct?

4 A Correct.

5 THE COURT: For sake of clarity, this is an IP
6 address on the column on the left.

7 Is that the same IP address referred to in the
8 previous document?

9 THE WITNESS: Yes.

10 BY MS. JAMES:

11 Q And is the data created for each one of the titles
12 that we allege infringement, 18 titles that we discussed
13 attached to the complaint? Is it true that this log shows
14 multiple exchanges per title?

15 A Yes.

16 Q So under the complaint chart, when we show the Hit
17 Date UTC, that is depicted one individual exchange for
18 each title, correct?

19 A Yes. It refers to column called transfer end.

20 Q And can you look by file name a little bit to the
21 right.

22 That for example there are five exchanges
23 depicted for Jensa Soma (ph)?

24 A Yes.

25 Q So does that mean for that particular title you

Patzer - Direct/James

63

1 actually recorded five individual exchanges with this IP
2 address exchanging and providing you with copyrighted
3 content?

4 A Yes.

5 Q And how big is each one of these files that were
6 captured?

7 A 16 kilobytes.

8 Q So it's 16 kilobytes times five, correct, for this
9 particular title?

10 A Yes.

11 THE COURT: How much video is a kilobyte in
12 terms of 16 kilobytes. Is that two minutes of video or is
13 it 20 minutes?

14 THE WITNESS: More seconds.

15 THE COURT: Seconds, okay.

16 BY MS. JAMES:

17 Q Does that refer to as a 103,000 zero and ones.

18 Is that correct?

19 A Yes.

20 Q And to answer the judge's question, what else does
21 this document tell you to reinforce that this, that these
22 downloads were done by the same IP address in the same
23 computer?

24 A It's the column, client version and the column client
25 DHT port and also the --

Patzner - Direct/James

64

1 Q If you don't mind, because it would be helpful for
2 us, can you start with the first column, identify that and
3 explain what it indicates to you?

4 A The first of the columns I mentioned or the first
5 column that is here?

6 Q The first column that you mentioned.

7 A That was the client DHT port, right? I don't know
8 which one.

9 THE COURT: Why don't you just start from the
10 first column.

11 A Yes. It's the client IP, stands for client IP, the
12 IP address we're taking about.

13 The client DHT port. This is the mentioned port
14 before which is random generated. Also software.

15 Q And sir, can I ask about that?

16 In the top of this chart the client DHT port is
17 53013?

18 A Correct.

19 Q But down about nine entries it's 29880?

20 A Yes.

21 Q And that is consistent to the second page.

22 Can you please explain, if you know, why those
23 numbers have changed?

24 A We expect that the software was reinstalled or it was
25 a different computer system behind the same IP address.

Patzner - Direct/James

65

1 Q Okay, so either a changing of the computer would
2 change that number?

3 A Yes.

4 Q Or, is it fair to say a different version or a
5 different software?

6 A It's the same software under the same version, but it
7 happens if you reinstall your computer system, reinstall
8 the same software.

9 Q And how do you know that it's the same software?

10 A I see in the column, client version. It says, you
11 torrent -- it's a number of the software version used and
12 the name 4 -- is the name of the software, the BitTorrent
13 software that was used here.

14 Q So that column is to the right after section M and
15 before file name, correct?

16 A Yes.

17 Q And client versions, you are able to look at this and
18 that is depicting the name of the BitTorrent software
19 downloaded by this IP address in order to engage in the
20 peer-to-peer infringement, correct?

21 A Correct.

22 Q And does that, does the name of that software and the
23 numerical numbers remain consistent throughout?

24 A Yes.

25 Q And does the number 342, does that depict exactly the

Patzer - Direct/James

66

1 H U, does that indicate to you the version of the
2 software?

3 A Correct.

4 Q So the version of the software in this particular
5 case did not change, correct?

6 A Correct.

7 Q But so that means that it must have been reinstalled
8 to generate the different port number.

9 Is that correct?

10 A Yes.

11 Q And if you look at it, and can you tell us; is it
12 accurate that you can tell us the port date changes in
13 29880, or in 2/15/2015 by referring to the session start
14 column?

15 A 2/15/2000?

16 Q Yes.

17 A Yes.

18 Q So by February 15, 2015, this port, this was the
19 established port and remained the same throughout the rest
20 of this report, correct?

21 A Correct.

22 Q And the fact that the port number stayed the same
23 indicates what to you?

24 A That it has been the same computer system behind all
25 the time.

Patzner - Direct/James

67

1 Q And what does the fact that the BitTorrent software
2 has remained consistent throughout the infringement period
3 indicate to you?

4 A The combination with the port, it shows us that it
5 has to be the same computer system.

6 Q Is that because it was somebody else or a different
7 IP address, or another computer was conducting BitTorrent
8 infringement? Is it unlikely that would be using the same
9 software?

10 A The same software and the same port and used the same
11 software? It's very likely that they used the same
12 software, but with the combination with the port it's very
13 unlikely that somebody else sharing the same content with
14 the same software and the same port.

15 Q So this also supports your opinion that this is the
16 same IP address engaged in this conduct?

17 A It's the same computer itself and IP address.

18 Q Same computer behind the same IP address?

19 A Yes.

20 Q And I'm going to show you what has been previously
21 marked as Exhibit 4.

22 THE COURT: Before we get to that.

23 Is there objection, Mr. Park?

24 MR. PARK: No, your Honor.

25 THE COURT: All right, this is Exhibit 4 in

Patzer - Direct/James

68

1 evidence, what was previously Exhibit 3.

2 MS. JAMES: Yes, your Honor.

3 (Plaintiff Exhibit 4 in evidence.)

4 BY MS. JAMES:

5 Q Sir, can you please identify this document for us?

6 A Yes.

7 It shows the extended information.

8 Q So it's accurate that internally you refer to this
9 document as extended information?

10 A Yes.

11 Q And sir, again by way of foundation, does this
12 information also relate to the copyright infringement
13 being alleged in this case?

14 A Yes.

15 Q And you're able to cross-reference this information
16 with the information that we discussed in the complaint?

17 A Yes, based on the IP addresses and the ports.

18 Q And is the IP address listed on this document?

19 A Yes.

20 Q And is that on the right-hand side second to the last
21 column?

22 A Yes.

23 Q And the DHT port number, is that again on the far,
24 far right-hand side?

25 A Correct.

Patzer - Direct/James

69

1 Q And is it -- and feel free to look at the second page
2 --is it accurate that again the port number is 29880?

3 A Yes.

4 Q And that remained consistent throughout the report,
5 correct?

6 A Correct.

7 Q And what is the information that is contained in this
8 report?

9 A This was additional information.

10 We have seen that the IP address is also inside
11 the swarms of that particular torrent files mentioned on
12 this document.

13 Q Okay. So for example, if you go down the page -- if
14 you go down the page, let's say a quarter of the way
15 through, there is a number of listing of X-Art, correct?

16 A Correct.

17 Q So this is depicting the downloading of Malibu Media
18 copyrighted content, correct?

19 A Yes.

20 But the difference between this document and the
21 other information is that for this information they have
22 no connection being established. This is just from the
23 indirect monitoring.

24 Q So can you explain to me for example the reference to
25 Microsoft Office, Sponge Bob, and other files that are

Patzer - Direct/James

70

1 depicted here?

2 A Yes.

3 So again, the question, it was a little bit
4 long.

5 Q I'm sorry. Can you tell, if you look at this
6 document there is a number of non-Malibu titles listed,
7 correct?

8 A Correct.

9 Q And if you examined these in reviewing these for
10 today's testimony, what did you understand about these
11 particular IP addresses or computer users from these
12 documents?

13 A Gives us some kind of profiling of the person behind
14 the computer system using it based on the torrent files he
15 is downloading.

16 For example, there is some English learning
17 course here, or English learning files. So I expect it is
18 not a native speaker. It is also some, or a lot of
19 computer programming stuff listed here so I expect it's a
20 computer programmer learning computer programming. And
21 also a few torrents using the word Asian in it. So maybe
22 it can be some Asian person.

23 Q And it also depicts other titles that are not related
24 to this lawsuit, correct?

25 A Correct.

Patzer - Direct/James

71

1 Q And none of these titles, I mean in other words our
2 complaint is not based on any of these indirect monitoring
3 findings, correct?

4 A That's correct. It's just for profiling the person
5 behind the computer.

6 (Continued on the following page.)
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Patzer - Direct/James

72

1 BY MS. JAMES (Cont'd):

2 Q So this is the broader monitoring, but it's not
3 actually the basis of our allegation of infringement?

4 A That's correct.

5 Q Because there has been no direct connection and
6 exchange?

7 A Correct.

8 Q But this is used to profile and to get further
9 understandings on the individual or the IP address user?

10 A Correct.

11 THE COURT: Mr. Patzer, with respect to
12 Plaintiff Exhibit 3 and 4, the tables you are looking at,
13 were those generated by your firm?

14 THE WITNESS: Yes.

15 THE COURT: Are these documents generated in the
16 regular course of your firm's business?

17 THE WITNESS: Yes.

18 THE COURT: Were they generated by the
19 monitoring system that you had designed, you spoke about
20 originally when you first took the stand?

21 THE WITNESS: Yes.

22 THE COURT: Okay.

23 Has Plaintiff Exhibit 4 been admitted into
24 evidence?

25 MS. JAMES: No, but I would move for it to be

Patzer - Direct/James

73

1 admitted.

2 THE COURT: Mr. Park, objections?

3 Do you have any objections to Plaintiff Exhibit
4 4 coming into evidence? That's the table we just looked
5 at.

6 MR. PARK: No, your Honor.

7 THE COURT: Plaintiff Exhibit 4 in evidence.

8 (Whereupon, Plaintiff Exhibit 4 was received in
9 evidence, as of this date.)

10 MS. JAMES: Your Honor, I'm not sure if this is
11 necessary, but I would like to present -- I would like to
12 give the witness a copy of the declaration of my file in
13 this case on April 18th, document entry 29 A in support of
14 my letter.

15 THE COURT: For what purpose?

16 MS. JAMES: Well, this declaration was just
17 simply an outline of his qualifications and prospective
18 testimony and I don't know if it's formally a part of this
19 process.

20 THE COURT: It's hearsay unless Mr. Park's going
21 to use it for cross-examination, but if it's a way to
22 speed this up so he doesn't have to go through his
23 qualifications, and Mr. Park is amenable, I would allow
24 it.

25 Does that make sense? Typically he can't get

Patzer - Direct/James

74

1 his own affidavit in evidence. There is no jury here.

2 You are certainly free to ask him all the questions to

3 lead to the affidavit, so in an effort to move this along

4 I would be inclined to allow it, but only if you are

5 inclined to allow it.

6 MR. PARK: For the declaration, yes.

7 THE COURT: You have no objection?

8 MR. PARK: No objection.

9 THE COURT: You can do it.

10 MS. JAMES: Thank you, your Honor.

11 Again, the purpose of this is to again reiterate

12 the witness's qualifications, background and personal

13 knowledge regarding the development and use and monitoring

14 of --

15 THE COURT: That's fine.

16 I'll accept it as is. You don't have to ask him

17 more about it.

18 MS. JAMES: Okay.

19 THE COURT: We'll call it Plaintiff Exhibit 6?

20 MS. JAMES: That's fine.

21 I marked it earlier, but 6 is perfect.

22 THE COURT: Okay.

23 MS. JAMES: I'm going to show the witness what

24 was previously marked as Plaintiff Exhibit 7 just to

25 clarify something on the record.

Patzer - Direct/James

75

1 THE COURT: Go ahead.

2 BY MS. JAMES:

3 Q Sir, does this document refresh --

4 THE COURT: Show it to Mr. Park before you ask
5 him any questions.

6 MS. JAMES: I gave him a copy, but I'm happy to
7 wait for you to get yours.

8 BY MS. JAMES:

9 Q Sir, I'm asking you to review this and the question
10 is simply, does this refresh your memory before you forgot
11 the last word on the reference to UTC, does this document
12 refresh your memory on that?

13 A Yes.

14 Q On what that means?

15 A Yes.

16 Q Can you please explain now.

17 A Universal -- UTC means coordinated universal time.

18 Q Thank you.

19 MS. JAMES: Your Honor, at this time I don't
20 have any additional questions for the witness.

21 THE COURT: Okay.

22 Mr. Park, you want a five-minute break or do you
23 want to jump right in?

24 MR. PARK: Five-minute break.

25 THE COURT: You got it.

Patzer - Direct/James

76

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

MR. PARK: Thank you.
THE COURT: Okay.
(Recess.)
(Continued on next page.)

Patzer - Cross/Park

77

1 (Following a recess.)

2 THE COURT: Be seated.

3 Mr. Park, whenever you are ready.

4 MR. PARK: Yes, your Honor.

5 THE COURT: Feel free to use the lectern.

6 Just make sure you are using a mike, wherever
7 you are.

8 MR. PARK: Yes, your Honor.

9 CROSS-EXAMINATION

10 BY MR. PARK:

11 Q Good morning, Mr. Patzer.

12 A Good morning.

13 Q I have couple of questions, just follow-up questions
14 and going to make it clear some answers you answered.

15 Sir, after your graduation, high school
16 graduation in 1999, then you joined Ex -- I'm sorry --
17 Excipio?

18 A I joined them later.

19 I first was self-employed working as security
20 consultant for various companies and Excipio was founded
21 around 2008 and at that point of time I joined Excipio.

22 Q So you personally engaged in development of software
23 you are using for the media?

24 A Yeah.

25 I was planning and designing the software. I

Patzer - Cross/Park

78

1 was not programming it with various programs, programming
2 software.

3 Q So you didn't program the program software, you
4 designed the program?

5 A Yes, I planned and managed all the development
6 process.

7 Q And you mentioned about when the verification stage
8 you -- your company compared that the downloaded file with
9 the original files.

10 Is it correct?

11 A Yes, that's correct.

12 Q So which one is the full movie?

13 Are you downloading full movie to compare it or
14 you would have full movie, the original movie and compare
15 a piece of the movie file downloaded?

16 A No.

17 We compare it -- we download the full movie and
18 then compare the full movie to their original movie and
19 the downloaded movie refers to the torrent hash I
20 mentioned before.

21 Q What is the --

22 THE COURT: Mr. Park, could you push the
23 microphone away from you, actually.

24 Actually, if you could put the foam end back on.

25 (There was a pause in the proceedings.)

Patzer - Cross/Park

79

1 THE COURT: Start the question again.

2 BY MR. PARK:

3 Q What is the purpose of that procedure, comparing the
4 downloading full movie and comparing the original movie?

5 A To ensure that content of the torrent file's actually
6 the content or the same movie of our customer.

7 Q The downloaded movies from the -- is it from the
8 person who is infringer or the possible infringer?

9 A No.

10 It's downloaded from the whole swarm.

11 Q Whole swarm?

12 A Yes.

13 Q Not specific infringer?

14 A Correct.

15 Q So basically the PCAP that you are using to compare
16 to decide whether the person is -- the infringer is
17 downloading is the same movie with the original movie that
18 Malibu Media's movie is only the piece that downloaded
19 from the infringer.

20 Is it correct?

21 A Yes.

22 It's a 16 kilobyte piece we download from the
23 infringer.

24 Q You mentioned it is only less than a second or
25 seconds of movie?

Patzer - Cross/Park

80

1 A Yeah.

2 Q 16 kilobytes is not that much.

3 Can you explain how long is that if it is a
4 movie?

5 A It's not comparable to a play time of a movie because
6 it depends on the data format.

7 Like I said before, it's about 131,000 ones and
8 zeros when you refer to ones and zeros of data. It's
9 131,000 ones and zeros.

10 THE COURT: Previously, Mr. Patzer, you told me
11 that amounted to two seconds.

12 It's not a minute, but it's something less
13 realizing you can't give me a specific amount?

14 THE WITNESS: Yes.

15 BY MR. PARK:

16 Q Is it fair to say two seconds or --

17 MS. JAMES: Objection.

18 He already said it's not --

19 THE COURT: Overruled.

20 You can finish your question and answer.

21 Ms. James, if you are going to object, let him finish the
22 question before you object.

23 Repeat the question, Mr. Park, and please answer
24 it.

25 MR. PARK: Yes.

Patzer - Cross/Park

81

1 BY MR. PARK:

2 Q Can you say how long is that movie in seconds?

3 A You can't really say, but it's less than a minute and
4 it's less than a second most of the time.

5 Q Less than a second in most of the time, correct?

6 A Yes, and it's not even playable.

7 Q That was my next question, whether the piece of PCAP
8 is playable or the torrent file downloaded the infringer
9 downloaded, can it be playable before they download the
10 full movie?

11 A The question is if the 16 kilobytes are playable,
12 right?

13 Can you just repeat the question? It was
14 confusing.

15 Q My question is whether the infringer downloaded piece
16 of file, torrent file, not full movie, can it be playable?

17 A Yes, if you have pieces they are playable.

18 If you have multiple pieces than just the one.

19 Q Multiple pieces?

20 A Yes.

21 Q My question is going to the direct -- the study that
22 we mentioned, I mean Ms. James mentioned about the
23 Washington State -- University of Washington study, it was
24 mentioning about direct detention also has a false
25 negatives.

Patzer - Cross/Park

82

1 THE COURT: Mr. Park, you are talking about
2 Plaintiff Exhibit 1, is that correct?

3 THE WITNESS: Yes.

4 MR. PARK: My version doesn't have a number.

5 A Yes.

6 Q It was mentioning about the blacklist method to
7 remove the detectors from the swarm.

8 Is there any -- I mean, do you know about that?

9 A Yes.

10 Q Is it your program can avoid this skill?

11 A No.

12 We are on some blacklists too, but this only
13 prevents us from connecting to the peer and if the peer is
14 not using blacklists, we can't establish a connection.

15 Q So your program is only using directed detection, not
16 indirect detection, is correct?

17 A Correct.

18 THE COURT: Say that again.

19 BY MR. PARK:

20 Q Directed detection?

21 THE COURT: Directed detection.

22 MR. PARK: Directed detection.

23 BY MR. PARK:

24 Q If infringer is using a proxy server, is your
25 software available to distinguish whether the first

Patzer - Cross/Park

83

1 infringer is using proxy server or their personal
2 computer?

3 Is there any way that you can distinguish it?

4 A Proxy server normally generates random ports for each
5 connection.

6 So it's not the same connection, if you use a
7 proxy server, the proxy server software that I know.

8 Q You can distinguish that by using the port number, is
9 it correct?

10 A Yes, if it's a random port number so every line or
11 log information have a different port, and in this case we
12 have all the same port.

13 And also on personal computers, normally there
14 is no proxy server installed, on the home computers.

15 Q How many proxy server services do you know?

16 A Three or four.

17 I'm not a specialist in proxy servers.

18 Q Do you know more users are using proxy servers?

19 A BitTorrent normally is not used as proxy servers, but
20 with VPN providers, so I have never seen BitTorrent
21 software using a proxy service.

22 Q Do you know how proxy servers assign the IP address
23 for the service specific to user?

24 A Typically the proxy server uses it's own IP address.

25 So if you connect to a proxy server it's like a

Patzer - Cross/Park

84

1 man in the middle, you connect to some server and the
2 server makes the connection for you. That's how a proxy
3 server works.

4 Q Basically if your detection software by IP address,
5 only using IP address, can you distinguish the infringer
6 is using, whether they are using his own IP address or the
7 IP address assigned by a proxy server?

8 Can you distinguish in between those?

9 A Not by just the IP address.

10 Q What if the proxy server assigns -- works exactly
11 like your computer, I mean that assigns using only same
12 kind, same number, in that case can you distinguish the
13 proxy server and the computer?

14 MS. JAMES: Objection.

15 His question is based on a hypothetical that he
16 already said doesn't happen.

17 THE COURT: You can answer the question.

18 Overruled. Repeat the question, it might be
19 easier.

20 BY MR. PARK:

21 Q If the proxy server assign the same port number, can
22 your software distinguish using someone who is using proxy
23 server and using their own computer, can you distinguish
24 them?

25 A If it's a special proxy server software doing what

Patzer - Cross/Park

85

1 you described, then it's not possible to see the
2 difference if it's a user or a proxy server.

3 Q Regarding the IP address, IP address, is it limited
4 or unlimited in numbers?

5 A It's limited in numbers.

6 Q And ISP, they are using limited in numbers, is it
7 correct?

8 A Yes.

9 THE COURT: You are saying limited, right?

10 MR. PARK: Limited.

11 THE WITNESS: Limited.

12 BY MR. PARK:

13 Q Most of personal users today have a fixed IP address
14 or not?

15 A Depends on the ISP and if -- in different countries,
16 different ISPs assign dynamic numbers, other ISPs always
17 assign static numbers.

18 So it's the decision of the ISP.

19 Q In most cases, what is the difference between static
20 and dynamic?

21 A Dynamic means the IP address can change and static
22 means the IP address has -- always stays the same, but
23 dynamic IP address can also stay the same because it's
24 dynamic.

25 THE COURT: Mr. Patzer, would it be possible to

Patzer - Cross/Park

86

1 have a scenario where there is a dynamic IP address but
2 you still wound up with the same port number like you did
3 in Plaintiff Exhibit 3?

4 THE WITNESS: Sorry, again, question.

5 THE COURT: Is it possible to have a scenario if
6 you look at Plaintiff Exhibit 3, which was that table, is
7 it possible to have a situation where the IP address is
8 dynamic, meaning changing over time because of the ISP's
9 practices, but the port number would be the same?

10 THE WITNESS: We have seen that many times.

11 THE COURT: So you have had the same port and
12 what would that tell you in that case, if IP addresses had
13 the same port number?

14 THE WITNESS: It's very likely it's still the
15 same PC if it's the same ISP.

16 THE COURT: It's likely you would be in that
17 dynamic IP address situation?

18 THE WITNESS: Yes.

19 THE COURT: Okay.

20 BY MR. PARK:

21 Q Dynamic situation, when the IP address would be
22 changing, when the infringer is using dynamic IP address,
23 when the IP address would be changed?

24 A It doesn't have to, it can change but it doesn't have
25 to.

Patzer - Cross/Park

87

1 Many providers assign dynamic IP address, but if
2 you stay online for same period of time, for example, if
3 you turn off your router for one hour and turn on again it
4 often stays the same or keeps the same IP address. It
5 doesn't has to change.

6 Just because it's dynamic, it doesn't enforce
7 the changes, can still be the same.

8 Q But if the dynamic IP address keeps assign the same
9 IP address, why they don't use a static?

10 Why go with dynamic?

11 A They are still flexible to changes.

12 So they can change it any time with the user
13 can't complain and say hey, my IP address changed, so they
14 always tell a dynamic IP address, but it doesn't have to
15 change but the ISP has the option to change any time they
16 want to.

17 Q So technically the dynamic IP address can change any
18 time because of the ISP?

19 A Yes.

20 Q So basically even though you are using the directed
21 detection technique, there is no way to detect if the
22 proxy server user who is using the same port number, is it
23 correct?

24 A That's correct.

25 If you compare proxy server in this case for

Patzner - Cross/Park

88

1 example like a Trojan Horse or a virus in the computer,
2 somebody can connect there and then forward the connection
3 with that IP address and pretend to be the person on this
4 computer.

5 Q Do you know there is a proxy server service that
6 gives a choice of the users to decide a IP address?

7 A There are services, but they are only IP addresses
8 from the provider.

9 So there are service providers which you can
10 connect to us and use my IP address for BitTorrent, but
11 that's, like, ISP, it's provider out there and you pay for
12 that services.

13 Q I mean, there is a proxy server services that allows
14 generate a arbitrary IP address and use them to the proxy
15 server subscribers?

16 A You don't generate the IP address.

17 IP address where the service providers
18 registered owner of. You can't generate random IP
19 address.

20 Q When in that case the proxy server user, when the
21 infringer is using proxy server, do -- your software can
22 detect proxy server's IP address or the proxy server's
23 subscriber's computer's IP address?

24 A We detect IP address off the provider.

25 Q Off the provider, off the proxy server services?

Patzer - Redirect/James

89

1 A Yes.

2 Q Correct?

3 A Yes.

4 Q Thank you.

5 MR. PARK: No more questions.

6 THE COURT: All right.

7 Ms. James, redirect?

8 MS. JAMES: Yes.

9 REDIRECT EXAMINATION

10 BY MS. JAMES:

11 Q Sir, is it correct that you testified that with the
12 proxy server, you know of no proxy server that does not
13 randomly assign port numbers.

14 Correct?

15 A Correct.

16 THE COURT: That was a couple of negatives in
17 that sentence.

18 Are you saying proxy servers do not assign
19 random IP address numbers?

20 THE WITNESS: No, proxy server -- wait.

21 Normal proxy servers I generate random ports for
22 each connection.

23 THE COURT: What about IP addresses?

24 THE WITNESS: IP address stays the IP address of
25 the proxy server.

Patzer - Redirect/James

90

1 THE COURT: A proxy server doesn't assign random
2 IP addresses, does not.

3 THE WITNESS: No, a proxy server --

4 THE COURT: It uses it's own.

5 THE WITNESS: Yeah, correct.

6 THE COURT: Got it.

7 BY MS. JAMES:

8 Q So in this case, just to clarify, the port number was
9 not random, correct?

10 A Correct.

11 Q So there is no evidence that a proxy server was used
12 here, correct?

13 A Correct.

14 Q The hypothetical questions that you were asked
15 whether or not it's possible for the proxy server, there
16 is nothing in this record and all of your data that
17 indicates that a proxy server was involved here?

18 A Correct.

19 Q And there is absolutely no indication that random
20 port numbers, multiple numbers, were assigned, correct?

21 A Correct.

22 Q And going back to the evidence in this case, isn't it
23 correct that between February 2015 and May 2015, and feel
24 free to look at any of the documents and the chart
25 attached to the complaint, that in this case the IP

Patzer - Redirect/James

91

1 address did not change?

2 A Correct.

3 Q So, is it accurate that even if it's dynamic, in
4 other words Verizon reserves the right to change it, in
5 this case, for all of the infringements indicated, in
6 fact, the IP address did not change?

7 A Correct.

8 Q Please tell me how you are sure of that.

9 A I see it on the documents that IP address didn't
10 change.

11 THE COURT: You say the documents, which exhibit
12 are you referring to?

13 THE WITNESS: Exhibit 3.

14 THE COURT: Okay.

15 BY MS. JAMES:

16 Q And the other documents that we looked at, Exhibit --
17 the complaint and Exhibit 4 also indicate that, correct?

18 A Yes, correct.

19 Q So the questions that you were asked, hypothetically,
20 about dynamic IP addresses in this particular case, the IP
21 address did not change?

22 A Correct.

23 Q Sir, you were also asked about the 16 -- I
24 apologize -- about the 16 kilobits that were downloaded?

25 A Kilobytes.

Patzer - Redirect/James

92

1 Q I believe there might have been some inconsistency in
2 the question and answer.

3 I believe that you said earlier that in the
4 documents that we looked through, that you can show in
5 this particular case, from your additional data files that
6 for each one of these titles, multiple times you
7 downloaded with your software 16 kilobytes per copyrighted
8 title.

9 Is that correct?

10 A Correct.

11 Q Can you please take a minute and identify the
12 document that depicts that?

13 A Exhibit 3.

14 Q Exhibit 3.

15 So it is not correct that in any one -- for any
16 one of the titles in which we allege infringement here,
17 the download sample is limited to one 16 kilobyte,
18 correct?

19 A I think few titles were just one 16 kilobytes
20 package, I think the title -- it was four times --

21 I think Blondes Love Brunettes title was only
22 one time, and I think few others. So not all of them has
23 more than one 16 kilobytes.

24 Q And in your opinion is the 16 kilobyte, is it
25 accurate -- is that enough information for you to be

Patzer - Redirect/James

93

1 confident in your verification process?

2 A Yes.

3 Q Why?

4 A Because it's still a lot of data, even -- it's not
5 playable by movie player, it's still 131,000 ones and
6 zeros in unique order.

7 So it proves that it's a part belongs to the
8 original part, even if it's just a small part.

9 Q I know you were kind of pushed into saying if it was
10 played it would be a certain duration, but tell me why
11 that's not a proper comparison.

12 A Because the time of how long it plays doesn't prove
13 if the piece doesn't belong to the original movie.

14 It's like the piece is already a fingerprint
15 shows it belongs to the original movie and there is no way
16 that you get the 16 kilobytes, which are identical to the
17 original movie, without being from it.

18 It's big enough to prove that it belongs to
19 original movie.

20 Q And you take these 16 kilobytes and you compare them
21 to both the actual title, the content you get from
22 Malibu Media, your client or our client, and also the full
23 title that you download from the swarm, correct?

24 A We compare it to the full title and the full title
25 was already compared before to original work.

Patzer - Recross/Park

94

1 Q So you believe the 16 kilobyte is an accurate
2 measurement to use?

3 A Yes.

4 Q And you don't think it's a fair analogy to refer to
5 play times for this particular data?

6 A Correct.

7 Q Is it a compressed file or it's just not a video
8 file, correct?

9 A Correct.

10 Q Okay.

11 MS. JAMES: Thank you.

12 I have no further questions.

13 THE COURT: Mr. Park, do you have any recross?

14 MR. PARK: Yes, your Honor.

15 RECROSS-EXAMINATION

16 BY MR. PARK:

17 Q The same question, I mean, you said that only 16
18 kilobytes is enough to identify the movie, is it correct?

19 A That's correct.

20 Q By having the 16 kilobytes, is there any way that you
21 can see that the infringer downloaded whole movie?

22 A Not by the 16 kilobytes.

23 But there is an additional field on Exhibit 3
24 that's called bit field, and this information is exchanged
25 while doing the handshake with the infringer and it's a

Patzer - Recross/Park

95

1 percentage value how much the infringer shared at time of
2 our handshake.

3 THE COURT: So 95 would be 95 percent of the
4 video, is that what you are saying?

5 THE WITNESS: Correct.

6 THE COURT: Okay.

7 BY MR. PARK:

8 Q Where is the number?

9 A It's on Exhibit 3, the column No. 3, it's called
10 BitTorrent bit field.

11 Q You mean this number means percentage of download?

12 A It's the percentage of the content, when we did the
13 handshake.

14 When we connect, for example, to the first one
15 it told us it's 95 percent of the torrent content he has
16 to offer and we can choose which piece of the data we want
17 to have.

18 Sometimes it shows zero, but this just means
19 it's at the beginning, so they just joined a swarm and
20 when we did the handshake he didn't have something, but
21 while we were connected he had something and we downloaded
22 some data from him.

23 So that proves our data exchange proves that he
24 actually had data and if you follow the column you can see
25 it increases by time. So it starts at a low value and

Patzer - Recross/Park

96

1 goes up because the infringer downloading more and more
2 from the IP and the swarm.

3 THE COURT: Does that mean if you are looking at
4 the BitTorrent bit field column that it's the largest
5 number for each video that would be relevant, that would
6 show you what percentage of the video was available
7 through the handshake?

8 THE WITNESS: Yeah.

9 THE COURT: Okay.

10 THE WITNESS: Yes.

11 And we always see it ends at 99 percent because
12 most of the infringers just stop sharing the content when
13 they finish downloading. It's configurable in the
14 software to do it.

15 MR. PARK: No more questions.

16 THE COURT: Ms. James, anything else?

17 MS. JAMES: No, thank you.

18 THE COURT: You may step down.

19 Thank you for your testimony.

20 (Witness steps down.)

21

22 THE COURT: Ms. James, do you have another
23 witness?

24 MS. JAMES: Yes, your Honor, we do.

25 THE COURT: Let's do it.

Paige - Direct/James

97

1 MS. JAMES: May we please call Patrick Paige to
2 the stand.

3 THE COURT: Yes.

4 **PATRICK PAIGE,**

5 having been duly sworn, was examined

6 and testified as follows:

7 THE CLERK: Please state and spell your name for
8 the record.

9 THE WITNESS: Patrick Paige, last name
10 P-A-I-G-E.

11 THE COURT: Mr. Paige, I'm going to ask you to
12 remember to speak into the microphone.

13 The acoustics are terrible in here.

14 DIRECT EXAMINATION

15 BY MS. JAMES:

16 Q Good afternoon, Mr. Paige.

17 Can I please ask you to give us a little bit of
18 background about your professional experience, starting
19 from 1989.

20 A I have over 25 years of law enforcement experience in
21 three different agencies, my last one Palm Beach County
22 sheriff's office where I spent just about ten years in the
23 computer crimes unit.

24 Q And is it accurate that you started your law
25 enforcement career in about 1989?

Paige - Direct/James

98

1 A Yes.

2 Q And you continued in law enforcement for the next,
3 did you say, 20 years?

4 I apologize.

5 A I have been in law enforcement for over 25 years.

6 Q Over 25 years. Okay.

7 And did there come a time somewhere around the
8 year 2000 that you became a detective in the computer
9 crimes unit?

10 A Yes.

11 Q For what organization did you work in that capacity?

12 A For the Palm Beach County sheriff's office.

13 Q And as a detective, did you investigate internet
14 frauds, crimes, child pornography and the like?

15 A Yes, computer-related crimes and computer forensics.

16 Q And was that a special unit?

17 A Yes.

18 Q Did you -- have you had an opportunity in that
19 position to conduct forensic computer exams for the
20 Broward County sheriff's office?

21 A Yes.

22 I conducted forensic examinations for the Palm
23 Beach County sheriff's office as well as all the
24 municipalities within that jurisdiction.

25 Also I have done examinations for the Broward

Paige - Direct/James

99

1 County sheriff's office, FBI, US Customs, FDLE, Florida
2 Department of Law Enforcement.

3 Q And the secret service?

4 A Yes.

5 Q And the Bureau of Alcohol, Tobacco & Firearms?

6 A Yes.

7 Q Were you called in by those other agencies in your
8 professional capacity to provide that assistance in
9 relevant cases?

10 A Yes.

11 Q Have you taken courses, have you taken courses to
12 inform you and basically to train you on investigating
13 computers?

14 A Yes.

15 I have taken hundreds of hours of
16 computer-related investigative classes involving computer
17 forensics over the course of my employment.

18 Q And have you remained current in those classes?

19 A Yes.

20 Q Have you ever been a teacher of computer forensic
21 classes.

22 A Yes.

23 I believe it was in 2003 I was an instructor for
24 Guidance Software which is the maker of NK Software,
25 forensic software that's used widely by investigators all

Paige - Direct/James

100

1 over the world.

2 Q Did you have an opportunity to teach at beginning and
3 advanced levels?

4 A Yes.

5 Q And in 1990, were you awarded the deputy of the year?

6 A Yes.

7 Q And in 1997 were you awarded the deputy of the month
8 for June?

9 A Yes.

10 Q And in 19 -- 2001 were you the detective of the month
11 for October?

12 A I believe so, yes.

13 Q And in 2002 were you awarded the distinction of
14 outstanding law enforcement officer of the year?

15 A Yes, for the Department of Justice.

16 Q For the United States Department of Justice?

17 A Yes.

18 Q In 2003 did you receive the US Customs service unit
19 citation award?

20 A Yes.

21 Q And in 2005, again, the detective of the month in
22 December?

23 A Yes.

24 Q And in 2007 were you again awarded the award by the
25 United States Justice Department for outstanding law

Paige - Direct/James

101

1 enforcement officer of the year?

2 A Yes.

3 Q Mr. Paige, have you testified as a fact and expert
4 witness previously?

5 A Yes.

6 Q Have you done that both at the trial level and the
7 appellate level?

8 A Yes.

9 Q Have you provided testimony in state, federal and
10 military courts?

11 A Yes.

12 Q Has any court ever refused your ability to provide
13 testimony in the topic as an expert in computer forensics?

14 A No.

15 Q Sir, have you testified on behalf of Malibu Media in
16 other cases?

17 A Yes.

18 Q Can you tell me roughly how many of those cases?

19 A Actual testimony including depositions probably four
20 or five times.

21 Q And did you provide testimony and deposition
22 testimony in a recent case **Malibu Media v John Doe** pending
23 in the Southern District of New York in front of Judge
24 Forrest?

25 A Yes.

Paige - Direct/James

102

1 Q And did that relate to your individual forensic work
2 on a computer?

3 A Yes.

4 Q And what did you find in your forensic examination of
5 that computer?

6 A Extensive -- in that case I found extensive use of
7 wiping programs, antifoensic programs, in other words,
8 spoliation on the drive.

9 Q And have you been asked to analyze computer databases
10 for such evidence?

11 A Yes.

12 Q Are you proficient in that proceeding -- I mean in
13 those procedures to detect that information?

14 A Yes.

15 Q And in this particular case, sir, have you had an
16 opportunity to submit declaration in support of
17 plaintiff's motion for -- a request to serve a third-party
18 subpoena?

19 A Yes.

20 Q And, sir, did you also submit a declaration,
21 supplemental declaration in support of plaintiff's
22 opposition to this motion that we are discussing today,
23 the motion to quash?

24 A Yes.

25 Q And, sir, did you have an opportunity in preparation

Paige - Direct/James

103

1 for today's testimony to review your declaration?

2 A Yes.

3 MS. JAMES: Just for the record, that
4 declaration is docket entry No. 15 and it was filed on
5 October 27, 2015.

6 BY MS. JAMES:

7 Q Sir, does that declaration also accurately reflect
8 your background as an expert?

9 A Yes.

10 Q And your work in this case and other cases?

11 A Yes.

12 Q And, sir, do you know whether or not an IP provider
13 will provide a civil litigant it's subscriber's
14 information without a subpoena?

15 A No.

16 They require a subpoena.

17 Q And what is the basis of your knowledge of that fact?

18 A Based on the Congress -- congressional act that was
19 put forth that requires subpoena, or the subpoena be
20 issued to an ISP to provide personal information about a
21 subscriber.

22 It's common knowledge in law enforcement as well
23 as in the private sector.

24 Q And in preparation for today's testimony, did you
25 have a chance to review the Verizon statement about when

Paige - Direct/James

104

1 they would provide subscriber information in civil
2 litigation?

3 A Yes.

4 Q And we have already introduced it into evidence, so
5 feel free to refer to it if it's helpful.

6 But is it -- does Verizon provide notice to its
7 subscribers that it will not disclose their personal
8 information without a court-issued subpoena?

9 A Yes.

10 Q Is there any other way for a civil litigant in your
11 experience to get a subscriber's name based on IP address
12 only?

13 A No.

14 Q No.

15 And was that true in your experience in law
16 enforcement?

17 A Yes.

18 Q So was there a procedure in place when you were
19 working in law enforcement for you to present a court or
20 the appropriate party an IP address and request the
21 identification of the actual target defendant?

22 A Yes.

23 Whenever an IP address is identified in an
24 investigation, a request is made to the state attorney's
25 office to issue a subpoena to the ISP for the records.

Paige - Direct/James

105

1 Q So it's a required step in both civil and criminal
2 process to request permission to seek that individual's
3 information?

4 A Yes.

5 Q And when they do respond, they tell you who the
6 subscriber is, correct?

7 A Yes.

8 Q And if the subscriber is an individual in a
9 residency, the response will indicate that.

10 Correct?

11 A Will you repeat your question.

12 Q Yes.

13 When the response is returned from the ISP
14 provider, if it's a residential home, the response will
15 indicate that, correct?

16 A It will -- the response will be the address of
17 where -- of the subscriber.

18 As to whether it's residential or commercial, I
19 don't know if that distinction is actually made.

20 Q I apologize.

21 You are correct, and I misstated my question.

22 A Sure.

23 Q It will give you the address and the name of the
24 subscriber, correct?

25 A Yes.

Paige - Direct/James

106

1 Q And, sir, did you in your work on behalf of
2 Malibu Media have an opportunity to verify or work with
3 the Excipio software that we were discussing earlier
4 today?

5 A Yes.

6 Q And can you tell me what was the nature of your
7 assignment?

8 A In 2013 we were engaged to conduct tests to real life
9 scenarios to determine whether the software can actually
10 detect an IP address, identify it correctly.

11 Q So is it accurate that you were retained or given the
12 marching order to set up a system to verify the accuracy
13 of the software.

14 Correct?

15 A Yes.

16 Q And what steps did you take to conduct that
17 investigation?

18 A We first started by renting four virtual servers
19 through GoDaddy, and all these servers had static IP
20 addresses.

21 Once we established the four servers, we
22 installed BitTorrent software on those servers, and once
23 the installation of the BitTorrent software was complete,
24 we used four different types of BitTorrent software, I
25 believe one of them was BitComet, I don't recall the names

Paige - Direct/James

107

1 of the other ones.

2 Once the software was set up, we then needed
3 four movies, we took four public domain movies that were
4 not copyright protected and I encoded them with specific
5 verbiage across the video. Once the video was prepared,
6 they were loaded into the BitTorrent client software.
7 BitTorrent was created for those movies.

8 The torrent file was uploaded as you would do in
9 a normal situation to like Pirate Bay, was one of them,
10 and once that process is complete, the test was ready to
11 begin, and Excipio was given the title names as they do in
12 all their cases.

13 Once they have the title names, they use their
14 software to identify the movies in the --

15 Q So in this case you provided Excipio with the four
16 tiles that you selected of the public domain content?

17 A Yeah.

18 The only information they were given were the
19 title names. They were not given any information as to
20 the server's identity, where they were located, IP address
21 or anything relating to that.

22 Q And I apologize for not laying this foundation, but
23 when you were conducting this verification process, for
24 whom were you employed?

25 Were you in private employment then?

Paige - Direct/James

108

1 A Yes.

2 I was working for a Computer Forensic, LLC, it
3 was founded in 2012.

4 Q And this is after your service as a law enforcement
5 officer?

6 A Yes.

7 This is in the private sector.

8 Q And this is where you were working at the time?

9 A Yes.

10 Q After you provide Excipio with the four titles and no
11 other information, what was the next step that occurred?

12 A Once the servers were installed, the BitTorrent
13 client software was installed in the servers and the
14 movies were uploaded, there was also a program called
15 Wireshark, which was discussed earlier.

16 Essentially that program will provide PCAP
17 files, in other words it's going to monitor the network
18 traffic in and out of our servers in the form of PCAP
19 files that were discussed earlier.

20 Q Is this software downloaded into your system in order
21 to ensure that when an exchange occurred you were going to
22 capture that so you could preserve a record of that.

23 Correct?

24 A Yes.

25 Q And that is software that you either purchased or

Paige - Direct/James

109

1 downloaded called Wireshark that you didn't actually
2 develop but used?

3 A It's open source software.

4 Q It's open source.

5 And, again, those PCAPs, those files are
6 accurate because they cannot be modified or adjusted after
7 they have been created.

8 Correct?

9 A Correct.

10 Q Did I misspeak?

11 A Well, I mean, when you say a file can't be modified,
12 I think when you look at the totality of the file itself,
13 if you were to go in there and, you know, take what we
14 call a hex editor and start manipulating data, eventually
15 the data would not make sense.

16 The PCAP files contain millions and millions of
17 bits of information. So given the circumstances, any file
18 when you think of that could be somehow manipulated.
19 That's why there are steps put in place to prevent stuff
20 like that.

21 Q So let me ask this question then, the intent of using
22 a PCAP capturing is to have a record that the file that
23 was exchanged was recorded.

24 Correct?

25 A Correct.

Paige - Direct/James

110

1 Q And it's also the point that it's not based on you,
2 but third-party software that this evidence is being
3 captured, correct?

4 A Correct.

5 Q And if we gave it to another IT professional, if they
6 were to open a PCAP file they would be able to understand
7 that the information was maybe the snapshot of this
8 exchange of information, correct?

9 They would be able to read that file?

10 A Yes.

11 Q So the purpose was to verify your experiment?

12 A Yes, and compare it with PCAP files after the testing
13 process from Excipio.

14 Q Then what happened next?

15 Was there an exchange between Excipio and you?

16 A Yes.

17 Within 24 hours they -- Excipio identified all
18 four of our servers and were able to provide us with their
19 locations via IP address.

20 So they were able to identify all four IP
21 addresses and, given that information, had they been law
22 enforcement or requested a subpoena for those IP
23 addresses, they would have eventually led to our identity.

24 Q So when you -- I hope I didn't -- I apologize if I'm
25 circling back -- in the beginning of your answer you said

Paige - Direct/James

111

1 the Excipio was able to identify the IP addresses and the
2 location.

3 You don't mean the physical location, correct?

4 A No.

5 I mean the location via IP address.

6 Q So the IP address only?

7 A Only the IP address.

8 Q And then the rest of your answer is talking about the
9 next step that if somebody has the IP address, then they
10 would have to ask for the court intervention to require or
11 request a subpoena for the actual subscriber information?

12 A That's correct.

13 Q And that would give the location?

14 A Correct.

15 Q Within this 24-hour period, Excipio was successful in
16 identifying your IP addresses as people that were sharing
17 and downloading and uploading -- is that correct?

18 Were you uploading also?

19 A Well, at the time of the test, yeah.

20 In order to complete the test we were using a
21 noncopyrighted movie and when you have a movie that's
22 never been in the BitTorrent swarm, it's considered a new
23 movie.

24 So you have to be the initial seeder of that
25 movie, so essentially we were sharing that movie out for

Paige - Direct/James

112

1 other people -- for everybody in the BitTorrent community
2 to download.

3 Q And Excipio was able to locate that offer, enter into
4 the handshake and actually download that information?

5 A Yes.

6 An examination of the PCAP files that we created
7 showed Excipio's IP address engaged in transactions with
8 our computer.

9 Q And what was the next step after that review?

10 A Once that was reviewed there was also communications
11 via e-mail where the individuals from Excipio provided
12 some screen captures as well as Excel spreadsheets similar
13 to the ones we are seeing here in Exhibit 3, I believe it
14 is up here.

15 They were able to provide us also with their
16 PCAP files is how we make the determination that we had a
17 successful test.

18 Q So after this -- after your test, then Excipio
19 provided you their PCAP files and you compared them.

20 Correct?

21 A Correct.

22 Q And from that you determined that there was an actual
23 exchange of the content?

24 A Yeah, they showed connections between our computers
25 and their computers, BitTorrent connections, yes.

Paige - Direct/James

113

1 Q And they were sharing the content?

2 A Yes.

3 Q And from this investigation or experiment, you have
4 concluded or is it accurate that you have concluded that
5 the Excipio software is effective in monitoring?

6 A Yes.

7 Q And, sir, I know you have heard a lot of testimony
8 about the University of Washington article today, correct?

9 A Yes.

10 Q And is it your understanding that the Excipio
11 software is a direct monitoring service, not an indirect?

12 A That's correct. They sort of pick up where the other
13 one left off.

14 Q And when you say the other one, do you mean the
15 monitoring service that was discussed in that article?

16 A Correct.

17 Q And then subsequent to those steps, they actually
18 engage in direct exchanges of information?

19 A Yes.

20 Q So it's above and beyond what was described in the
21 University of Washington article.

22 Is that correct?

23 A Yes.

24 Q Could you briefly describe for me, and feel free to
25 look at the complaint and any of the attachments, is it

Paige - Direct/James

114

1 accurate that in this particular case, the case that's
2 pending before the court now, that the IP address remained
3 consistent between the infringement period of February
4 2015 and May of 2015?

5 A I have not looked at the log files in this particular
6 case.

7 Q Okay.

8 What I was referring to is the exhibit attached
9 to the complaint that's before you in 3.

10 A Exhibit 3?

11 Q I believe so.

12 It should be the actual complaint in this case.

13 MS. JAMES: Your Honor, can I just show it to
14 him?

15 THE COURT: Yes.

16 (There was a pause in the proceedings.)

17 BY MS. JAMES:

18 Q Yes.

19 A Exhibit 5?

20 Q Yes, I apologize.

21 I am referring to Exhibit A to the complaint.

22 Sir, when you look at that chart, does it indicate to you
23 that each one of the alleged downloads and infringement is
24 attributable to the same IP address?

25 A Yes, according to this document.

Paige - Direct/James

115

1 Q I know that you didn't draft the document.

2 A Exactly.

3 I did not draft this document, so...

4 Q But you do see that it's the same IP address?

5 A Yes, I did.

6 Q And when you referred earlier to Excipio's -- the
7 Exhibit 3, you have in your past experience have reviewed
8 such additional data charts, correct?

9 A Yeah.

10 These are provided when I conduct forensic
11 examinations. On computers that are turned over for
12 examination, I have seen this document before.

13 Q So you have used this in the course of your expert
14 testimony and your investigation, correct?

15 A Yes.

16 Q And if you look at the client IP on the left-hand
17 side, you can see that that remains consistent.

18 Correct?

19 A Yes.

20 Q Does that indicate to you, if it does, I know you are
21 not the drafter, that at least for the information
22 depicted on this chart, that the IP address stayed the
23 same?

24 A Yes.

25 Q And whether or not it was dynamic in this particular

Paige - Cross/Park

116

1 case it remained the same?

2 A Correct.

3 Q Thank you.

4 MS. JAMES: I have no further questions.

5 THE COURT: Mr. Park.

6 MR. PARK: Yes, your Honor.

7 THE COURT: Mr. Park, approximately how much
8 time do you think you will need?

9 MR. PARK: Maybe ten to 15 minutes.

10 THE COURT: Okay.

11 CROSS-EXAMINATION

12 BY MR. PARK:

13 Q Good afternoon, Mr. Paige.

14 A Good afternoon, Mr. Park.

15 Q In April 10, 2015, Judge Kevin Nathaniel Fox, he in
16 Southern District of New York, he found you don't have any
17 personal knowledge of what information ISPs can use and
18 what procedure if any ISP employee were the substantive
19 work they perform in analyzing the data or identifying the
20 subscribers.

21 Is it correct?

22 A I haven't read the document.

23 Q You haven't read that document?

24 A No.

25 Q Actually **Malibu Media v John Doe** that I have a case

Paige - Cross/Park

117

1 number, but the judge found you don't have any personal
2 knowledge of the ISPs, how they locate the subscriber by
3 using the IP address. But you say you didn't hear about
4 this.

5 And --

6 MS. JAMES: Is that a question?

7 THE COURT: That's a different question.

8 First you said you didn't read the document.
9 Then you said did you hear about this. You can answer
10 that.

11 A No, I don't recall that.

12 Q Okay.

13 I would ask regarding your test, so the test
14 that you did with the four servers, so you rented the four
15 virtual server for the test, is it correct?

16 A Correct.

17 Q How much did you pay for the renting the virtual
18 servers?

19 A I don't have that number offhand.

20 I have a receipt in one of my documents probably
21 over there that I can produce.

22 THE COURT: It's in the courtroom?

23 THE WITNESS: I believe so.

24 THE COURT: Take a second.

25 You can produce or maybe Ms. James can find it

Paige - Cross/Park

118

1 for you.

2 (There was a pause in the proceedings.)

3 A You want the initial price or the renewal over a year
4 combined?

5 Q Just the initial price.

6 A \$1,150.

7 Q \$1,150?

8 A Yes.

9 Q Did you rent the virtual server from a commercial
10 server services?

11 A Yes, GoDaddy.

12 Q GoDaddy.com?

13 A Yes.

14 Q Is it for four servers or only one server?

15 A Four individual different servers with four different
16 static IP addresses.

17 Q Static IP addresses.

18 And when you upload them, install the softwares
19 to the virtual software, did you use your computer in your
20 office?

21 A Yes.

22 Q Is it --

23 A Well, they are virtual servers, so you have the VPN,
24 virtual private network, you log into your server.

25 Q So do you know where is the virtual server is

Paige - Cross/Park

119

1 located?

2 A Physically?

3 Q Yes.

4 A No.

5 Q You use your computer through internet that
6 connect -- to connect the virtual servers, is it correct?

7 A That's how you connect to a virtual server, yes.

8 Q Did you choose your virtual server's IP addresses?

9 A No.

10 They were chosen by GoDaddy when we purchased
11 the four servers or when we rented the four servers.

12 Q We were discussing previous, I mean witnesses --
13 witness was discussing about the port number in that case,
14 in your virtual servers.

15 Your virtual servers have the fixed port numbers
16 or randomly generated one?

17 A The software was installed on the servers.

18 So it would have generated a random port.

19 Q Random port.

20 And you said that you installed -- you
21 transferred the document -- the sample movies in the
22 server and have Excipio detected that server, right, you
23 give the name of the file to them, is it correct?

24 A I'm sorry.

25 Can you repeat the question.

Paige - Cross/Park

120

1 Q After up loading your movie file for the test and did
2 you let the Excipio know about -- knows about the file
3 number, file name?

4 A Yes.

5 They were only provided the file name.

6 Q And Excipio detected the four servers you said within
7 24 hours, they detected that file was in the servers, is
8 it correct?

9 A Yes.

10 They identified all the server IP addresses.

11 Q So they detected the server's IP addresses, is it
12 correct?

13 A Yes.

14 Q They couldn't detect your computer's IP address, is
15 it correct?

16 A They detected the devices or computers that were
17 running the BitTorrent software.

18 Q So that means the server, virtual server, is it
19 correct?

20 A Yes.

21 Q And your computers that you were using to upload the
22 files to the virtual server, the computer has different IP
23 address, is it correct?

24 A Different what address?

25 Q IP address.

Paige - Cross/Park

121

1 A IP address?

2 Q Yes.

3 A Yes.

4 Q And is there any Excipio -- have they detected your
5 computers, not server's IP address?

6 Did they detect your computer's IP address?

7 A When you say they, are you asking Excipio?

8 Q Yes.

9 A Okay.

10 Excipio identified the server IP addresses that
11 was running our BitTorrent software.

12 Q Is there any way that they can detect your computer?

13 A Given the scenario that we are talking about here?

14 Q Yes.

15 A You are talking about the computer -- so I understand
16 your question correctly, you are talking about my computer
17 that I used to VPN into the --

18 Q Yes.

19 A -- the servers.

20 Q Yeah, your computer that you are sitting on and is
21 there any way that they detect your computer, not virtual
22 server?

23 A Not -- no, not through the test described by me.

24 Q So basically your computer is not detectible by the
25 Excipio software?

Paige - Cross/Park

122

1 A By Excipio software, no.

2 Again, the virtual server that's running the
3 BitTorrent software would be the -- in that particular
4 case Excipio, in order to identify who is using that
5 particular server would have to have somebody issue a
6 subpoena to GoDaddy.

7 And they would be able to provide log
8 information. That's how they would trace it back to me.
9 They would ask GoDaddy, who had the servers, who's logging
10 into these servers at these particular times and days?

11 They will have my actual VPN login files that
12 would trace it back to me.

13 Q But GoDaddy.com is not an ISP, is it correct?

14 A Yeah, they -- yeah.

15 THE COURT: Yes, it's correct or --

16 THE WITNESS: Yes, it is.

17 A They provide web hosting. They provide all kinds of
18 services.

19 THE COURT: GoDaddy is an ISP?

20 THE WITNESS: Yes.

21 THE COURT: Okay.

22 BY MR. PARK:

23 Q So basically the method you were using to test the
24 software, is it comparable to the proxy server system, is
25 it correct?

Paige - Cross/Park

123

1 A No.

2 Q How different?

3 A They are just different.

4 I mean, in the -- in the situation that I use,
5 I'm essentially using four independent virtual servers and
6 I'm VPNing into the servers and controlling those servers
7 because they are, again, virtual.

8 They are independent of each other, and they
9 have static IP addresses, but they are still independent
10 of each other. It really has nothing to do with proxy
11 servers in the scenario that I used.

12 Q Isn't same method to using some server that has
13 distance from the infringer and then the server is
14 downloading something, transacting something with a swarm
15 and the person who is using that server just simply
16 download or transmit a document from the server in that
17 way there was no way to detect the real IP address of the
18 infringer.

19 So basically isn't it the same method and same
20 way that you use is the same that the proxy server users
21 are using?

22 A To be honest, I didn't even follow your question.

23 I can only attest to what I did in that
24 situation.

25 Q Okay.

Paige - Redirect/James

124

1 MR. PARK: No further questions.

2 THE COURT: Ms. James, any redirect?

3 MS. JAMES: Yes.

4 REDIRECT EXAMINATION

5 BY MS. JAMES:

6 Q Mr. Paige, is it correct when -- I know that Mr. Park
7 just asked you a series of questions about was Excipio
8 able to detect your computer.

9 I understand your testimony to be that the
10 BitTorrent software was being run on the servers, correct?

11 A Yeah, theoretically it's my computer because I'm the
12 one that rented it, yes.

13 Q I understand.

14 But I think he was making a distinction between
15 those servers that you rented to do this test and conduct
16 the test and your own individual computer that you signed
17 in to the servers.

18 Correct?

19 A Yes.

20 Q And your computer you were not running the BitTorrent
21 software?

22 A Right.

23 Q So, of course you wouldn't have been detected because
24 you weren't doing it, correct?

25 A That's correct.

Paige - Redirect/James

125

1 THE COURT: Mr. Paige, if your individual
2 computer had been running BitTorrent, and you didn't
3 bother with the GoDaddy servers, would the same experiment
4 have led to the computer you were using?

5 THE WITNESS: Absolutely.

6 MS. JAMES: That is exactly my point.

7 BY MS. JAMES:

8 Q So without the use, unless an individual -- in other
9 words an individual has to download and operate BitTorrent
10 software in order to be detected by Excipio.

11 Correct?

12 A Correct.

13 Q And this hypothetical about a proxy server, again, an
14 individual that was somehow signed in to a proxy server,
15 they would have to download and be using BitTorrent
16 software in order to be detected by Excipio software and
17 then subsequently have the direct connection.

18 Correct?

19 A That's my understanding.

20 Again, proxy server is not my expertise.

21 Q Is it a term of art?

22 A Excuse me?

23 Q Is it a term of art, proxy server?

24 A I don't understand what you said, a term of art?

25 Q Term of art, in other words, does it have any

Paige - Redirect/James

126

1 specialized meaning to people in the computer service
2 field?

3 A I don't know what you are getting at.

4 Sorry.

5 Q What does the term proxy server mean to you?

6 A It's allowing someone's ability to mask their IP
7 address.

8 People use proxy servers to remain anonymous
9 sometimes on the internet.

10 Q And the idea would be so that no one could detect
11 their IP address?

12 A To remain anonymous.

13 Q Okay.

14 And in this case we have detected the IP
15 address, correct?

16 A It's my understanding that's the case, that would be
17 what Mr. Patzer revealed on that.

18 Q Thank you.

19 MS. JAMES: No further questions.

20 THE COURT: Mr. Park, any further questions?

21 MR. PARK: No, your Honor.

22 THE COURT: You may step down.

23 Thank you, Mr. Paige.

24 THE WITNESS: Thank you.

25 (Witness steps down.)

1 THE COURT: Any other witnesses, Ms. James?

2 MS. JAMES: No, your Honor.

3 THE COURT: Mr. Park, any other witnesses?

4 MR. PARK: No, your Honor.

5 THE COURT: Let's talk about schedule.

6 You should both order the transcript and provide
7 posthearing briefing in whatever form you want. I don't
8 mind if it's a letter, but let's be realistic about the
9 page limits.

10 How many pages you think you need, Ms. James?

11 MS. JAMES: A letter is fine.

12 THE COURT: How many pages?

13 MS. JAMES: How many pages?

14 THE COURT: Do you need?

15 MS. JAMES: I would say between five and ten.

16 THE COURT: If you are going to do a ten-page
17 letter, why don't you just write a 20-page brief and
18 double space it to make it easier for me to get through.

19 So it's a motion to quash, so 20 pages,
20 Mr. Park, also. I would ask you to cite to the record.
21 It would be helpful for me as you make your arguments.
22 How much time do you need?

23 You want 30 days, I'll give you 30 days after
24 that? Ms. James, if you want to move faster that's fine,
25 but you have to order from the court reporter.

1 MS. JAMES: Yes, so 30 days from the receipt of
2 the transcript?

3 THE COURT: I'll give you that, but you are the
4 plaintiff.

5 This depends how fast you want to move.

6 MS. JAMES: He's the movant, it's his motion.

7 THE COURT: That's correct, but typically in any
8 case the defendant likes to delay and the plaintiff does
9 not. That's why I'm asking you.

10 I get it's your motion, so do you want to wait
11 30 days?

12 MS. JAMES: No.

13 THE COURT: I'll make him do it faster, but then
14 you have to order the transcript faster.

15 I can have you do it tomorrow, but then you are
16 going to have to pay for it.

17 MS. JAMES: I would like to have 30 days after I
18 receive the transcript and I'd like to review with the
19 court reporter, my client, the difference in the expedited
20 and what's viable or not.

21 THE COURT: Okay.

22 MS. JAMES: Hopefully we'll get it in a week.

23 THE COURT: Let's agree within one week from
24 today you will submit to me a briefing schedule.

25 You can have 30 days from receipt of the

1 transcript. Work that out with the court reporter, what
2 that looks like, and then file a one-page letter letting
3 me know when you will submit briefs.

4 MS. JAMES: Okay.

5 And are you envisioning both of us submitting
6 simultaneously?

7 THE COURT: That's fine.

8 You can do that.

9 MS. JAMES: Right.

10 THE COURT: You can both have the same amount of
11 time.

12 MS. JAMES: Right.

13 THE COURT: 30 days from getting the transcript
14 and write me a letter telling me when you will have it
15 because I want to get these motions done sooner rather
16 than later.

17 MS. JAMES: Right.

18 THE COURT: Is there anything else?

19 MS. JAMES: No.

20 Once we both submit our posthearing submissions,
21 do we respond to each other or we don't?

22 THE COURT: No, you don't need to.

23 MS. JAMES: Good.

24 I wanted to clarify.

25 THE COURT: One brief is fine.

1 MS. JAMES: Okay.

2 THE COURT: I want you to tell me how the
3 hearing basically helped your arguments each of you.

4 MS. JAMES: All right.

5 THE COURT: I'll wait for a letter from you, but
6 once we get something we are going to try to bang this out
7 sooner rather than later.

8 MS. JAMES: Thank you.

9 MR. PARK: Thank you.

10 (The matter concluded.)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

I N D E X

MICHAEL PATZER	5
DIRECT EXAMINATION	6
BY MS. JAMES	
CROSS-EXAMINATION	77
BY MR. PARK	
REDIRECT EXAMINATION	89
BY MS. JAMES	
RECROSS-EXAMINATION	94
BY MR. PARK	
PATRICK PAIGE	97
DIRECT EXAMINATION	97
BY MS. JAMES	
CROSS-EXAMINATION	116
BY MR. PARK	
REDIRECT EXAMINATION	124
BY MS. JAMES	

EXHIBITS

Plaintiff Exhibit 1 in evidence.	49
Plaintiff Exhibit 2 in evidence.	49
Plaintiff Exhibit 5 in evidence.	53
Plaintiff Exhibit 4 in evidence.	68
Plaintiff Exhibit 4 was received in evidence	73

\$	2013 ^[1] - 106:8	9	85:22, 85:23, 86:1, 86:7, 86:17, 86:21, 86:22, 86:23, 87:1, 87:4, 87:8, 87:9, 87:13, 87:14, 87:17, 88:3, 88:6, 88:10, 88:14, 88:16, 88:17, 88:19, 88:22, 88:23, 88:24, 89:19, 89:24, 91:1, 91:6, 91:9, 91:21, 104:11, 104:20, 104:23, 105:16, 105:23, 106:10, 107:20, 110:19, 111:5, 111:6, 111:7, 111:9, 112:7, 114:2, 114:24, 115:4, 115:22, 117:3, 120:14, 120:23, 120:24, 120:25, 121:1, 121:5, 121:6, 123:17, 126:7, 126:11, 126:15
\$1,150 ^[2] - 118:6, 118:7	2015 ^[9] - 56:3, 56:5, 66:18, 90:23, 103:5, 114:4, 116:15	90 ^[1] - 61:18	addresses ^[42] - 31:23, 33:14, 33:15, 34:2, 34:11, 34:16, 35:5, 35:12, 35:22, 35:24, 36:4, 36:8, 36:16, 37:3, 37:11, 37:23, 38:14, 40:14, 40:15, 45:4, 45:16, 45:20, 45:24, 68:17, 70:11, 86:12, 88:7, 89:23, 90:2, 91:20, 106:20, 110:21, 110:23, 111:1, 111:16, 118:16, 118:17, 119:8, 120:10, 120:11, 121:10, 123:9
1	2016 ^[1] - 1:8	94 ^[1] - 131:6	adjusted ^[1] - 109:6
1 ^[10] - 16:24, 30:20, 30:24, 48:23, 48:25, 49:1, 52:23, 53:10, 82:2, 131:13	23rd ^[1] - 56:5	95 ^[3] - 95:3, 95:15	admit ^[1] - 52:19
1.2 ^[1] - 39:12	24 ^[2] - 110:17, 120:7	97 ^[2] - 131:7, 131:8	admitted ^[3] - 52:20, 72:23, 73:1
10 ^[1] - 116:15	24-hour ^[1] - 111:15	98.116.160.61 ^[1] - 1:7	adopted ^[1] - 42:13
100 ^[2] - 1:22, 61:19	25 ^[3] - 97:20, 98:5, 98:6	99 ^[1] - 96:11	adopting ^[1] - 43:6
103,000 ^[1] - 63:17	27 ^[1] - 103:5	9:30 ^[1] - 1:8	advanced ^[1] - 100:3
10601 ^[1] - 1:16	29 ^[2] - 2:17, 73:13	9:32 ^[1] - 2:1	affidavit ^[6] - 14:19, 16:17, 16:25, 17:6, 74:1, 74:3
10th ^[1] - 56:3	29880 ^[3] - 64:19, 66:13, 69:2	A	afternoon ^[4] - 6:14, 97:16, 116:13, 116:14
1102 ^[1] - 1:15	2C ^[1] - 1:19	a.m ^[2] - 1:8, 2:1	agencies ^[3] - 42:1, 97:21, 99:7
11354 ^[1] - 1:19	3	ability ^[4] - 13:25, 22:13, 101:12, 126:6	ago ^[3] - 7:18, 27:5, 42:10
116 ^[1] - 131:9	3 ^[17] - 53:14, 61:9, 61:12, 68:1, 72:12, 86:3, 86:6, 91:13, 92:13, 92:14, 94:23, 95:9, 112:13, 114:9, 114:10, 115:7	able ^[18] - 14:3, 17:25, 22:1, 26:5, 28:17, 38:11, 47:15, 65:17, 68:15, 110:6, 110:9, 110:18, 110:20, 111:1, 112:3, 112:15, 122:7, 124:8	agree ^[1] - 128:23
11722 ^[1] - 1:23	30 ^[8] - 40:6, 127:23, 128:1, 128:11, 128:17, 128:25, 129:13	absolutely ^[2] - 90:19, 125:5	ahead ^[3] - 3:25, 49:11, 75:1
1180 ^[1] - 1:22	342 ^[1] - 65:25	accept ^[1] - 74:16	akin ^[1] - 32:16
124 ^[1] - 131:10	3520 ^[1] - 1:19	access ^[2] - 26:11, 46:12	Alcohol ^[1] - 99:5
131,000 ^[5] - 25:7, 25:9, 80:7, 80:9, 93:5	4	accessing ^[1] - 114:25	alert ^[1] - 49:5
147th ^[1] - 1:19	4 ^[12] - 65:12, 67:21, 67:25, 68:3, 72:12, 72:23, 73:4, 73:7, 73:8, 91:17, 131:14, 131:15	accumulation ^[1] - 50:8	algorithm ^[2] - 24:13
15 ^[4] - 56:7, 66:18, 103:4, 116:9	4.2 ^[1] - 38:9	accuracy ^[1] - 106:12	all-around ^[1] - 7:15
15-CV-3504 ^[1] - 53:11	445 ^[1] - 1:15	accurate ^[33] - 8:12, 10:16, 11:10, 12:13, 17:6, 22:1, 22:6, 22:11, 29:16, 29:23, 31:5, 35:2, 37:14, 39:18, 39:19, 40:4, 41:18, 42:9, 42:19, 48:12, 54:22, 56:8, 66:12, 68:8, 69:2, 91:3, 92:25, 94:1, 97:24, 106:11, 109:6, 113:4, 114:1	allegation ^[1] - 72:3
150 ^[2] - 43:10, 43:15	49 ^[2] - 131:13, 131:13	accurately ^[2] - 21:25, 103:7	allege ^[2] - 62:12, 92:16
16 ^[26] - 23:9, 23:10, 25:6, 25:18, 26:5, 26:9, 43:25, 63:7, 63:8, 63:12, 79:22, 80:2, 81:11, 91:23, 91:24, 92:7, 92:17, 92:19, 92:23, 92:24, 93:16, 93:20, 94:1, 94:17, 94:20, 94:22	5	acoustics ^[2] - 6:2, 97:13	alleged ^[5] - 26:14, 40:12, 56:10, 68:13, 114:23
17 ^[1] - 7:9	5 ^[7] - 53:17, 53:18, 53:20, 53:21, 114:19, 131:2, 131:14	acronym ^[1] - 32:9	allow ^[5] - 4:3, 9:11, 73:23, 74:4, 74:5
18 ^[3] - 2:15, 55:25, 62:12	53 ^[1] - 131:14	act ^[1] - 103:18	allowing ^[1] - 126:6
18th ^[2] - 3:25, 73:13	53013 ^[1] - 64:17	Act ^[1] - 50:1	allows ^[1] - 88:13
19 ^[1] - 100:10	6	actions ^[1] - 44:23	amenable ^[1] - 73:23
1989 ^[2] - 97:19, 97:25	6 ^[4] - 41:17, 74:19, 74:21, 131:3	actual ^[15] - 5:12, 10:18, 19:20, 21:18, 24:1, 53:9, 54:17, 55:16, 93:21, 101:19, 104:21, 111:11, 112:22, 114:12, 122:11	amount ^[3] - 25:11, 80:13, 129:10
1990 ^[1] - 100:5	6.1 ^[2] - 41:25, 43:4	add ^[1] - 2:19	amounted ^[1] - 80:11
1997 ^[1] - 100:7	6/16/2015 ^[1] - 53:11	additional ^[7] - 59:14, 61:21, 69:9, 75:20, 92:5, 94:23, 115:8	analogy ^[2] - 38:20, 94:4
1999 ^[4] - 6:17, 6:19, 6:20, 77:16	631 ^[1] - 1:23	address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	analyze ^[1] - 102:9
2	65,000 ^[1] - 59:23	address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	analyzing ^[1] - 116:19
2 ^[4] - 49:3, 49:4, 49:10, 131:13	68 ^[1] - 131:14	address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	and-a-half ^[5] - 15:10, 15:11, 56:14, 56:24, 57:9
2/15/2000 ^[1] - 66:15	7	add ^[1] - 2:19	
2/15/2015 ^[1] - 66:13	7 ^[1] - 74:24	address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	
20 ^[4] - 1:8, 63:13, 98:3, 127:19	712-6107 ^[1] - 1:23	add ^[1] - 2:19	
20-page ^[1] - 127:17	73 ^[1] - 131:15	address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	
200 ^[1] - 45:19	77 ^[1] - 131:4	add ^[1] - 2:19	
2000 ^[2] - 56:6, 98:8	8	address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	
2001 ^[1] - 100:10	89 ^[1] - 131:5	add ^[1] - 2:19	
2002 ^[1] - 100:13		address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	
2003 ^[2] - 99:23, 100:18		add ^[1] - 2:19	
2005 ^[1] - 100:21		address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	
2007 ^[1] - 100:24		add ^[1] - 2:19	
2008 ^[5] - 5:9, 7:23, 7:24, 31:7, 77:21		address ^[118] - 1:7, 5:9, 32:24, 33:13, 33:17, 33:19, 33:22, 33:23, 34:4, 35:17, 36:17, 38:5, 38:12, 38:15, 39:3, 39:7, 40:1, 40:16, 40:21, 40:22, 45:1, 46:15, 47:7, 54:19, 54:20, 54:23, 55:14, 56:8, 57:12, 57:18, 58:24, 60:5, 62:6, 62:7, 63:2, 63:22, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:18, 69:10, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21,	
2012 ^[1] - 108:3		add ^[1] - 2:19	

<p>anonymous [2] - 126:8, 126:12 answer [9] - 27:14, 63:20, 80:20, 80:23, 84:17, 92:2, 110:25, 111:8, 117:9 answered [1] - 77:14 answering [1] - 35:9 answers [1] - 77:14 antenna [1] - 29:22 antiforensic [1] - 102:7 apologize [11] - 3:16, 3:19, 11:23, 52:24, 53:7, 91:24, 98:4, 105:20, 107:22, 110:24, 114:20 appearances [1] - 2:4 APPEARANCES [1] - 1:14 appeared [2] - 54:14, 54:16 appearing [1] - 37:23 appellate [1] - 101:7 approach [3] - 41:18, 55:19, 61:6 appropriate [4] - 4:16, 15:22, 52:19, 104:20 April [4] - 1:8, 2:15, 73:13, 116:15 arbitrary [2] - 38:12, 88:14 architect [2] - 6:22, 6:23 arguments [2] - 127:21, 130:3 Art [1] - 69:15 art [5] - 19:14, 125:21, 125:23, 125:24, 125:25 article [25] - 31:1, 31:5, 31:6, 31:9, 31:12, 31:25, 35:2, 35:11, 36:2, 36:23, 37:17, 37:20, 38:3, 38:9, 40:10, 41:3, 41:17, 42:10, 42:21, 43:3, 44:5, 44:15, 113:8, 113:15, 113:21 Asian [2] - 70:21, 70:22 asserted [1] - 51:10 assign [9] - 83:22, 84:21, 85:16, 85:17, 87:1, 87:8, 89:13, 89:18, 90:1 assigned [4] - 1:7, 43:20, 84:7, 90:20 assignment [2] - 14:8, 106:7 assigns [2] - 84:10, 84:11 assistance [1] - 99:8 assistant [2] - 6:22, 6:23 associated [1] - 43:5 assume [2] - 14:24, 46:10 assumption [1] - 58:9 attached [3] - 62:13, 90:25, 114:8 attachment [1] - 54:5 attachments [2] - 54:5, 113:25 attest [1] - 123:23 attorney [1] - 2:9 attorney's [1] - 104:24 attributable [1] - 114:24 authors [1] - 30:8 available [8] - 7:5, 10:2, 18:8, 34:9, 46:12, 49:18, 82:25, 96:6 Avenue [1] - 1:15</p>	<p>avoid [2] - 41:1, 82:10 award [2] - 100:19, 100:24 awarded [4] - 100:5, 100:7, 100:13, 100:24 aware [1] - 41:10</p> <p style="text-align: center;">B</p> <p>B-A-Y [1] - 9:2 background [6] - 5:16, 6:15, 8:4, 74:12, 97:18, 103:8 bang [1] - 130:6 bar [1] - 3:10 based [11] - 24:14, 29:11, 57:2, 58:8, 68:17, 70:14, 71:2, 84:15, 103:18, 104:11, 110:1 basis [4] - 2:18, 3:10, 72:3, 103:17 Bay [4] - 8:24, 9:1, 9:5, 107:9 Beach [3] - 97:21, 98:12, 98:23 became [2] - 17:4, 98:8 BEFORE [1] - 1:11 begin [1] - 107:11 beginning [4] - 27:14, 95:19, 100:2, 110:25 behalf [8] - 2:6, 27:20, 28:21, 38:4, 46:16, 54:16, 101:15, 106:1 behind [5] - 64:25, 66:24, 67:18, 70:13, 71:5 belong [1] - 93:13 belongs [4] - 25:15, 93:7, 93:15, 93:18 best [1] - 9:3 better [1] - 6:4 between [14] - 21:17, 22:6, 27:16, 37:19, 40:11, 69:20, 84:8, 85:19, 90:23, 110:15, 112:24, 114:3, 124:14, 127:15 beyond [1] - 113:20 big [3] - 22:19, 63:5, 93:18 bit [9] - 10:15, 21:15, 21:16, 62:20, 70:3, 94:24, 95:10, 96:4, 97:17 BitComet [1] - 106:25 bits [1] - 109:17 BitTorn [2] - 39:23, 47:13 BitTorrent [56] - 8:17, 8:21, 8:23, 9:4, 9:14, 10:1, 10:18, 10:21, 14:6, 14:25, 15:6, 18:8, 18:20, 18:21, 18:23, 19:1, 21:22, 23:19, 33:10, 33:12, 33:16, 33:25, 34:3, 34:14, 38:1, 47:14, 47:16, 47:20, 47:24, 48:2, 59:24, 65:12, 65:18, 67:1, 67:7, 83:20, 88:10, 95:10, 96:4, 106:22, 106:23, 106:24, 107:6, 107:7, 108:12, 111:22, 112:1, 112:25, 120:17, 121:11, 122:3, 124:10, 124:20, 125:2, 125:9, 125:15</p>	<p>bitTorrent [1] - 83:19 blacklist [1] - 82:6 blacklists [4] - 41:3, 41:6, 82:12, 82:14 Blondes [1] - 92:21 Bob [1] - 69:25 book [1] - 38:23 books [1] - 7:7 bother [1] - 125:3 bottom [1] - 56:1 break [6] - 4:1, 10:14, 19:13, 61:20, 75:22, 75:24 brief [2] - 127:17, 129:25 briefing [2] - 127:7, 128:24 briefly [1] - 113:24 briefs [1] - 129:3 bring [1] - 5:7 broader [1] - 72:2 brought [1] - 30:11 Broward [2] - 98:20, 98:25 Brunettes [1] - 92:21 Bureau [1] - 99:5 business [5] - 6:21, 7:8, 27:25, 28:12, 72:16 button [1] - 14:19 BY [48] - 1:16, 1:20, 6:8, 6:13, 15:20, 30:22, 35:1, 49:12, 51:18, 53:22, 54:8, 55:22, 58:4, 61:8, 62:10, 63:16, 68:4, 72:1, 75:2, 75:8, 77:10, 79:2, 80:15, 81:1, 82:19, 82:23, 84:20, 85:12, 86:20, 89:10, 90:7, 91:15, 94:16, 95:7, 97:15, 103:6, 114:17, 116:12, 122:22, 124:5, 125:7, 131:3, 131:4, 131:5, 131:6, 131:8, 131:9, 131:10</p> <p style="text-align: center;">C</p> <p>cannot [4] - 11:5, 40:8, 41:7, 109:6 capacity [2] - 98:11, 99:8 capture [1] - 108:22 captured [5] - 43:17, 46:16, 47:2, 63:6, 110:3 captures [1] - 112:12 capturing [1] - 109:22 career [1] - 97:25 case [51] - 2:2, 7:14, 7:17, 13:22, 15:2, 17:4, 20:3, 24:7, 26:18, 32:22, 45:14, 45:22, 46:24, 46:25, 49:13, 49:15, 51:12, 53:9, 53:10, 55:11, 62:2, 66:5, 68:13, 73:13, 83:11, 84:12, 86:12, 87:25, 88:20, 90:8, 90:22, 90:25, 91:5, 91:20, 92:5, 101:22, 102:6, 102:15, 103:10, 107:15, 114:1, 114:6, 114:12, 116:1, 116:25, 119:13, 122:4, 126:14, 126:16, 128:8</p>	<p>cases [12] - 28:24, 41:9, 44:19, 45:13, 45:14, 45:23, 85:19, 99:9, 101:16, 101:18, 103:10, 107:12 CAT [1] - 1:25 CD [1] - 9:17 Central [2] - 1:6, 1:23 certain [2] - 47:2, 93:10 certainly [1] - 74:2 Challenges [2] - 31:2, 41:18 chance [5] - 5:5, 30:7, 53:23, 54:1, 103:25 change [15] - 25:2, 65:2, 66:5, 85:21, 86:24, 87:5, 87:12, 87:15, 87:17, 91:1, 91:4, 91:6, 91:10, 91:21 changed [4] - 24:5, 64:23, 86:23, 87:13 changes [4] - 24:6, 66:12, 87:7, 87:11 changing [3] - 65:1, 86:8, 86:22 charged [2] - 9:19, 56:16 chart [7] - 55:24, 56:10, 62:16, 64:16, 90:24, 114:22, 115:22 charts [1] - 115:8 check [1] - 16:18 Chejin [1] - 2:9 CHEJIN [2] - 1:18, 1:20 child [1] - 98:14 choice [1] - 88:6 choose [2] - 95:16, 119:8 chosen [1] - 119:10 circling [1] - 110:25 circumstances [1] - 109:17 citation [1] - 100:19 cite [1] - 127:20 cited [1] - 5:10 Civil [1] - 50:16 civil [5] - 50:20, 103:13, 104:1, 104:10, 105:1 clarification [1] - 3:13 clarifications [1] - 3:24 clarify [3] - 74:25, 90:8, 129:24 clarity [1] - 62:5 classes [3] - 99:16, 99:18, 99:21 clear [2] - 38:19, 77:14 CLERK [3] - 2:2, 5:22, 97:7 click [2] - 14:19, 48:1 client [30] - 7:25, 8:1, 8:2, 8:11, 8:12, 10:10, 10:13, 13:21, 15:4, 42:8, 43:11, 45:5, 55:10, 60:18, 63:24, 64:7, 64:11, 64:13, 64:16, 65:10, 65:17, 93:22, 107:6, 108:13, 115:16, 128:19 clients [5] - 8:22, 18:20, 18:23, 35:18, 35:19 code [11] - 20:18, 20:19, 23:14, 23:20, 24:8, 24:12, 24:22, 24:25, 25:1, 25:3, 32:14 codes [2] - 20:21, 24:23 coffee [1] - 39:22</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>collected [6] - 11:10, 11:20, 12:22, 12:25, 36:16, 45:17</p> <p>collection [1] - 43:24</p> <p>column [16] - 55:3, 62:6, 62:19, 63:24, 64:2, 64:5, 64:6, 64:10, 65:10, 65:14, 66:14, 68:21, 95:9, 95:24, 96:4</p> <p>columns [4] - 54:6, 54:9, 58:21, 64:4</p> <p>combination [3] - 60:4, 67:4, 67:12</p> <p>combined [1] - 118:4</p> <p>coming [2] - 39:24, 73:4</p> <p>commercial [2] - 105:18, 118:9</p> <p>common [2] - 46:18, 103:22</p> <p>communal [1] - 46:8</p> <p>communicate [3] - 3:2, 14:17, 20:8</p> <p>communication [2] - 27:16, 28:8</p> <p>communications [1] - 112:10</p> <p>community [1] - 112:1</p> <p>companies [2] - 41:5, 77:20</p> <p>company [4] - 6:24, 12:14, 41:12, 78:8</p> <p>comparable [3] - 27:17, 80:5, 122:24</p> <p>compare [17] - 10:9, 14:3, 14:24, 16:2, 25:7, 31:18, 38:16, 59:20, 78:13, 78:14, 78:17, 78:18, 79:15, 87:25, 93:20, 93:24, 110:12</p> <p>compared [4] - 43:9, 78:8, 93:25, 112:19</p> <p>comparing [4] - 14:5, 15:21, 79:3, 79:4</p> <p>comparison [1] - 93:11</p> <p>complain [1] - 87:13</p> <p>complaint [17] - 49:15, 52:23, 52:25, 53:9, 53:23, 54:4, 58:12, 62:13, 62:16, 68:16, 71:2, 90:25, 91:17, 113:25, 114:9, 114:12, 114:21</p> <p>complete [8] - 14:16, 14:25, 15:1, 15:3, 15:7, 106:23, 107:10, 111:20</p> <p>completed [1] - 16:17</p> <p>completely [1] - 18:1</p> <p>compose [1] - 39:15</p> <p>compressed [1] - 94:7</p> <p>computer [68] - 47:11, 47:21, 48:6, 57:1, 57:5, 57:19, 57:25, 58:25, 59:6, 59:14, 59:21, 59:23, 60:3, 60:6, 60:7, 60:14, 61:3, 63:23, 64:25, 65:1, 65:7, 66:24, 67:5, 67:7, 67:17, 67:18, 70:11, 70:14, 70:19, 70:20, 71:5, 83:2, 84:11, 84:13, 84:23, 88:1, 88:4, 97:23, 98:8, 98:15, 98:19, 99:16, 99:20, 101:13, 102:2, 102:5, 102:9, 112:8,</p>	<p>118:19, 119:5, 120:22, 121:12, 121:15, 121:16, 121:20, 121:21, 121:24, 124:8, 124:11, 124:16, 124:20, 125:2, 125:4, 126:1</p> <p>Computer [1] - 108:2</p> <p>computer's [3] - 88:23, 120:14, 121:6</p> <p>computer-related [2] - 98:15, 99:16</p> <p>computers [10] - 60:10, 83:13, 83:14, 99:13, 112:24, 112:25, 115:11, 120:16, 120:21, 121:5</p> <p>concept [2] - 31:15, 40:10</p> <p>concluded [3] - 113:4, 130:10</p> <p>conduct [7] - 3:21, 67:16, 98:19, 106:8, 106:16, 115:10, 124:15</p> <p>conducted [2] - 57:12, 98:22</p> <p>conducting [2] - 67:7, 107:23</p> <p>confident [2] - 24:22, 93:1</p> <p>configurable [1] - 96:13</p> <p>confirmed [1] - 20:24</p> <p>confusing [1] - 81:14</p> <p>Congress [1] - 103:18</p> <p>congressional [1] - 103:18</p> <p>connect [13] - 19:3, 19:7, 29:22, 36:16, 37:1, 83:25, 84:1, 88:2, 88:10, 95:14, 119:6, 119:7</p> <p>connected [1] - 95:21</p> <p>connecting [2] - 19:16, 82:13</p> <p>connection [18] - 23:5, 25:20, 33:15, 39:4, 40:17, 41:6, 41:7, 42:6, 54:14, 69:22, 72:5, 82:14, 83:5, 83:6, 84:2, 88:2, 89:22, 125:17</p> <p>connections [3] - 40:11, 112:24, 112:25</p> <p>connects [1] - 19:1</p> <p>consider [1] - 39:9</p> <p>considered [1] - 111:22</p> <p>consistent [7] - 29:9, 64:21, 65:23, 67:2, 69:4, 114:3, 115:17</p> <p>constantly [2] - 18:14, 56:23</p> <p>consultant [1] - 77:20</p> <p>Cont'd [1] - 72:1</p> <p>contact [3] - 12:10, 13:16, 34:10</p> <p>contain [2] - 20:15, 109:16</p> <p>contained [2] - 34:16, 69:7</p> <p>containing [1] - 37:10</p> <p>contains [2] - 27:23, 61:17</p> <p>content [63] - 9:15, 9:16, 10:6, 10:8, 10:13, 13:15, 13:20, 16:7, 18:21, 19:12, 20:1, 20:2, 20:5, 20:11, 20:14, 20:22, 21:2, 21:16, 21:17, 22:16, 22:23, 23:3, 23:10, 23:19, 23:23, 23:24, 24:2, 24:14, 25:25, 27:21, 29:14, 33:22, 34:11, 35:20, 37:24, 38:15, 39:7, 40:20, 40:22, 41:24, 42:7,</p>	<p>43:21, 45:2, 45:5, 45:21, 46:2, 48:1, 55:2, 55:6, 60:5, 60:7, 63:3, 67:13, 69:18, 79:5, 79:6, 93:21, 95:12, 95:15, 96:12, 107:16, 112:23, 113:1</p> <p>contents [2] - 14:20, 47:24</p> <p>continue [1] - 4:2</p> <p>Continued [2] - 71:6, 76:4</p> <p>continued [1] - 98:2</p> <p>contract [1] - 51:1</p> <p>contractor [1] - 8:3</p> <p>controlling [1] - 123:6</p> <p>conversation [1] - 9:18</p> <p>coordinated [1] - 75:17</p> <p>copies [2] - 30:15, 52:22</p> <p>copy [6] - 13:23, 30:13, 53:2, 53:5, 73:12, 75:6</p> <p>copyright [15] - 9:10, 9:12, 13:23, 32:13, 37:13, 41:4, 49:5, 49:6, 49:21, 49:24, 52:1, 52:5, 68:12, 107:4</p> <p>copyrighted [15] - 8:13, 10:1, 17:19, 18:6, 18:12, 19:4, 32:15, 32:25, 36:9, 55:23, 56:21, 62:3, 63:2, 69:18, 92:7</p> <p>copyrights [1] - 9:7</p> <p>corporation [1] - 12:19</p> <p>correct [235] - 3:14, 8:14, 10:19, 10:20, 10:23, 11:14, 11:18, 12:16, 12:19, 12:20, 12:23, 12:24, 13:2, 13:3, 14:6, 14:7, 14:11, 14:12, 14:15, 16:1, 16:9, 16:10, 16:15, 16:16, 17:11, 17:12, 18:7, 18:13, 19:17, 19:18, 20:6, 20:7, 20:16, 20:17, 20:18, 20:23, 21:5, 21:24, 22:9, 23:12, 23:21, 23:25, 24:3, 24:9, 24:10, 24:19, 25:14, 26:1, 26:3, 26:18, 27:9, 28:14, 28:19, 28:20, 28:22, 28:23, 29:10, 31:10, 31:13, 36:6, 36:10, 36:11, 38:2, 38:5, 38:6, 38:21, 38:22, 39:11, 41:11, 41:15, 41:16, 41:19, 41:20, 42:11, 42:12, 42:15, 42:23, 43:2, 43:8, 43:13, 43:17, 43:18, 43:22, 43:23, 43:25, 44:1, 44:16, 45:9, 45:25, 46:1, 46:4, 46:5, 47:4, 47:5, 47:18, 47:19, 47:24, 48:9, 49:16, 49:17, 50:11, 50:13, 50:14, 51:3, 52:7, 52:16, 54:6, 56:11, 57:9, 57:10, 57:13, 57:14, 58:17, 62:3, 62:4, 62:18, 63:8, 63:18, 64:18, 65:15, 65:20, 65:21, 66:3, 66:5, 66:6, 66:9, 66:20, 66:21, 68:25, 69:5, 69:6, 69:15, 69:16, 69:18, 70:7, 70:8, 70:24, 70:25, 71:3, 71:4, 72:4, 72:7, 72:10, 78:10, 78:11, 79:14, 79:20, 81:5, 82:2, 82:16, 82:17, 83:9, 85:7, 87:23, 87:24, 89:2, 89:11, 89:14, 89:15, 90:5,</p>	<p>90:9, 90:10, 90:12, 90:13, 90:18, 90:20, 90:21, 90:23, 91:2, 91:7, 91:17, 91:18, 91:22, 92:9, 92:10, 92:15, 92:18, 93:23, 94:6, 94:8, 94:9, 94:18, 94:19, 95:5, 105:6, 105:10, 105:15, 105:21, 105:24, 106:14, 108:23, 109:8, 109:9, 109:24, 109:25, 110:3, 110:4, 110:8, 111:3, 111:12, 111:14, 111:17, 112:20, 112:21, 113:8, 113:12, 113:16, 113:22, 115:8, 115:14, 115:18, 116:2, 116:21, 117:15, 117:16, 119:6, 119:23, 120:8, 120:12, 120:15, 120:19, 120:23, 122:13, 122:15, 122:25, 124:6, 124:10, 124:18, 124:24, 124:25, 125:11, 125:12, 125:18, 126:15, 128:7</p> <p>correctly [2] - 106:10, 121:16</p> <p>cost [1] - 43:4</p> <p>costs [2] - 43:5, 43:9</p> <p>counsel [3] - 2:4, 29:1, 61:14</p> <p>countries [1] - 85:15</p> <p>County [5] - 97:21, 98:12, 98:20, 98:23, 99:1</p> <p>couple [3] - 30:13, 77:13, 89:16</p> <p>course [5] - 70:17, 72:16, 99:17, 115:13, 124:23</p> <p>courses [2] - 99:11</p> <p>court [19] - 4:12, 8:25, 9:19, 26:20, 35:22, 45:13, 45:14, 49:14, 50:18, 50:21, 50:22, 101:12, 104:8, 104:19, 111:10, 114:2, 127:25, 128:19, 129:1</p> <p>COURT [169] - 1:1, 2:11, 2:22, 2:24, 3:20, 4:9, 4:24, 5:1, 5:3, 5:14, 5:25, 6:5, 6:10, 6:18, 14:23, 15:6, 15:9, 15:14, 15:19, 30:14, 30:17, 30:21, 32:11, 32:16, 32:21, 33:2, 33:6, 33:16, 33:19, 33:24, 34:3, 34:7, 34:12, 34:14, 34:21, 34:24, 48:18, 48:21, 48:25, 49:7, 49:9, 49:11, 51:8, 51:12, 51:16, 52:11, 52:17, 52:20, 53:1, 53:6, 53:12, 53:14, 53:18, 53:20, 54:7, 55:21, 57:17, 57:23, 58:2, 58:10, 58:16, 58:19, 58:23, 59:2, 59:4, 59:9, 59:11, 59:13, 59:18, 59:21, 60:2, 60:9, 60:13, 60:20, 60:23, 61:1, 61:7, 62:5, 63:11, 63:15, 64:9, 67:22, 67:25, 72:11, 72:15, 72:18, 72:22, 73:2, 73:7, 73:15, 73:20, 74:7, 74:9, 74:15, 74:19, 74:22, 75:1, 75:4, 75:21, 75:25, 76:2, 77:2, 77:5, 78:22, 79:1, 80:10, 80:19, 82:1, 82:18, 82:21, 84:17, 85:9, 85:25, 86:5, 86:11, 86:16, 86:19, 89:6, 89:16, 89:23, 90:1, 90:4, 90:6, 91:11,</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>91:14, 94:13, 95:3, 95:6, 96:3, 96:9, 96:16, 96:18, 96:22, 96:25, 97:3, 97:11, 114:15, 116:5, 116:7, 116:10, 117:7, 117:22, 117:24, 122:15, 122:19, 122:21, 124:2, 125:1, 126:20, 126:22, 127:1, 127:3, 127:5, 127:12, 127:14, 127:16, 128:3, 128:7, 128:13, 128:21, 128:23, 129:7, 129:10, 129:13, 129:18, 129:22, 129:25, 130:2, 130:5</p> <p>Court [4] - 1:21, 30:16, 53:5, 61:13</p> <p>Court's [1] - 3:1</p> <p>court-issued [1] - 104:8</p> <p>court-ordered [1] - 50:22</p> <p>Courthouse [1] - 1:5</p> <p>courtroom [1] - 117:22</p> <p>courts [1] - 101:10</p> <p>CR [1] - 1:22</p> <p>crawl [2] - 8:16, 8:18</p> <p>create [2] - 24:20, 56:9</p> <p>created [5] - 24:22, 62:11, 107:7, 109:7, 112:6</p> <p>creation [1] - 28:9</p> <p>crimes [4] - 97:23, 98:9, 98:14, 98:15</p> <p>criminal [1] - 105:1</p> <p>cross [4] - 3:22, 43:21, 68:15, 73:21</p> <p>CROSS [4] - 77:9, 116:11, 131:4, 131:9</p> <p>cross-examination [2] - 3:22, 73:21</p> <p>CROSS-EXAMINATION [4] - 77:9, 116:11, 131:4, 131:9</p> <p>cross-reference [2] - 43:21, 68:15</p> <p>current [1] - 99:18</p> <p>customer [3] - 30:3, 39:24, 79:6</p> <p>customers [1] - 44:20</p> <p>Customs [2] - 99:1, 100:18</p> <p>cut [1] - 44:10</p> <p>CV-15-3504 [2] - 1:4, 2:2</p>	<p>date [14] - 11:21, 12:7, 12:22, 26:25, 27:2, 27:3, 27:6, 29:13, 39:24, 54:13, 54:18, 56:2, 66:12, 73:9</p> <p>Date [2] - 54:11, 62:17</p> <p>dated [3] - 2:15, 31:9, 31:12</p> <p>Dates [1] - 54:22</p> <p>dates [1] - 56:1</p> <p>days [8] - 122:10, 127:23, 128:1, 128:11, 128:17, 128:25, 129:13</p> <p>December [1] - 100:22</p> <p>decide [2] - 79:16, 88:6</p> <p>decides [1] - 33:21</p> <p>decision [1] - 85:18</p> <p>declaration [13] - 3:6, 3:7, 4:1, 4:8, 73:12, 73:16, 74:6, 102:16, 102:20, 102:21, 103:1, 103:4, 103:7</p> <p>declarations [1] - 3:3</p> <p>default [5] - 60:16, 60:20, 60:22, 60:23, 60:24</p> <p>defendant [6] - 2:9, 2:10, 2:15, 3:2, 104:21, 128:8</p> <p>Defendant [2] - 1:8, 1:18</p> <p>delay [2] - 39:25, 128:8</p> <p>Department [4] - 99:2, 100:15, 100:16, 100:25</p> <p>depict [1] - 65:25</p> <p>depicted [5] - 55:24, 62:17, 62:23, 70:1, 115:22</p> <p>depicting [3] - 55:12, 65:18, 69:17</p> <p>depicts [2] - 70:23, 92:12</p> <p>deposition [1] - 101:21</p> <p>depositions [1] - 101:19</p> <p>deputy [2] - 100:5, 100:7</p> <p>describe [15] - 8:7, 8:19, 9:3, 13:4, 13:7, 13:17, 17:13, 18:17, 25:5, 27:8, 37:18, 37:21, 54:11, 61:15, 113:24</p> <p>described [7] - 17:14, 18:25, 36:25, 55:16, 85:1, 113:20, 121:23</p> <p>design [3] - 7:18, 7:19, 28:10</p> <p>designed [3] - 7:15, 72:19, 78:4</p> <p>designing [2] - 7:13, 77:25</p> <p>detailed [2] - 61:16, 61:25</p> <p>details [2] - 5:12, 47:9</p> <p>detect [12] - 87:21, 88:22, 88:24, 102:13, 106:10, 120:14, 121:6, 121:12, 121:21, 123:17, 124:8, 126:10</p> <p>detected [11] - 50:6, 119:22, 120:6, 120:7, 120:11, 120:16, 121:4, 124:23, 125:10, 125:16, 126:14</p> <p>detectible [1] - 121:24</p> <p>detection [15] - 31:16, 31:18, 31:21, 37:19, 37:21, 41:1, 41:5, 41:14, 82:15, 82:16, 82:20, 82:21, 82:22, 84:4, 87:21</p>	<p>detective [4] - 98:8, 98:13, 100:10, 100:21</p> <p>detectors [1] - 82:7</p> <p>detects [1] - 22:22</p> <p>detention [1] - 81:24</p> <p>determination [1] - 112:16</p> <p>determine [3] - 11:25, 59:5, 106:9</p> <p>determined [3] - 24:11, 57:24, 112:22</p> <p>develop [1] - 109:2</p> <p>developed [1] - 17:24</p> <p>developing [1] - 7:24</p> <p>development [3] - 74:13, 77:22, 78:5</p> <p>devices [1] - 120:16</p> <p>DHT [5] - 63:25, 64:7, 64:13, 64:16, 68:23</p> <p>difference [5] - 37:18, 69:20, 85:2, 85:19, 128:19</p> <p>different [29] - 13:9, 14:13, 23:23, 25:1, 25:22, 25:24, 30:8, 49:19, 60:7, 60:10, 60:19, 64:25, 65:4, 65:5, 66:8, 67:6, 83:11, 85:15, 85:16, 97:21, 106:24, 117:7, 118:15, 120:22, 120:24, 123:2, 123:3</p> <p>Digital [1] - 49:25</p> <p>digits [2] - 20:10</p> <p>DIRECT [4] - 6:7, 97:14, 131:3, 131:8</p> <p>direct [15] - 17:14, 39:9, 41:6, 41:7, 42:10, 42:16, 43:4, 43:6, 46:7, 72:5, 81:21, 81:24, 113:11, 113:18, 125:17</p> <p>directed [5] - 82:15, 82:20, 82:21, 82:22, 87:20</p> <p>Directions [1] - 31:2</p> <p>directly [3] - 41:23, 42:17, 42:25</p> <p>discard [1] - 30:4</p> <p>disclose [1] - 104:7</p> <p>discuss [2] - 5:8, 49:19</p> <p>discussed [13] - 30:12, 35:11, 36:1, 40:10, 42:20, 42:21, 44:14, 46:2, 62:12, 68:16, 108:15, 108:19, 113:15</p> <p>discussing [7] - 31:25, 35:3, 36:23, 102:22, 106:3, 119:12, 119:13</p> <p>discussion [1] - 38:3</p> <p>dispute [1] - 17:4</p> <p>disregard [2] - 29:24, 30:5</p> <p>distance [1] - 123:13</p> <p>distinction [3] - 100:13, 105:19, 124:14</p> <p>distinguish [8] - 82:25, 83:3, 83:8, 84:5, 84:8, 84:12, 84:22, 84:23</p> <p>District [2] - 101:23, 116:16</p> <p>DISTRICT [2] - 1:1, 1:1</p> <p>DMCA [8] - 31:4, 32:7, 32:9,</p>	<p>35:6, 35:7, 50:1, 50:6, 50:8</p> <p>docked [1] - 3:16</p> <p>docket [4] - 2:17, 52:23, 53:10, 103:4</p> <p>docketing [1] - 3:19</p> <p>document [35] - 14:21, 51:13, 52:14, 53:16, 54:21, 55:12, 56:17, 57:8, 57:11, 58:5, 58:14, 58:17, 61:15, 61:22, 62:8, 63:21, 68:5, 68:9, 68:18, 69:12, 69:20, 70:6, 73:13, 75:3, 75:11, 92:12, 114:25, 115:1, 115:3, 115:12, 116:22, 116:23, 117:8, 119:21, 123:16</p> <p>documented [1] - 54:17</p> <p>documents [11] - 16:22, 17:3, 49:14, 70:12, 72:15, 90:24, 91:9, 91:11, 91:16, 92:4, 117:20</p> <p>Doe [4] - 2:3, 2:10, 101:22, 116:25</p> <p>DOE [1] - 1:7</p> <p>domain [2] - 107:3, 107:16</p> <p>done [7] - 4:14, 15:16, 31:7, 63:22, 98:25, 101:6, 129:15</p> <p>double [1] - 127:18</p> <p>down [14] - 9:20, 9:21, 10:14, 19:13, 37:13, 50:12, 61:20, 64:19, 69:13, 69:14, 96:18, 96:20, 126:22, 126:25</p> <p>download [32] - 9:10, 9:16, 10:6, 10:21, 21:19, 21:25, 23:9, 25:12, 25:18, 26:5, 26:17, 27:20, 39:5, 39:23, 42:6, 46:1, 47:17, 48:4, 54:17, 55:13, 78:17, 79:22, 81:9, 92:17, 93:23, 95:11, 112:2, 112:4, 123:16, 125:9, 125:15</p> <p>downloaded [23] - 14:6, 15:3, 15:5, 22:23, 29:14, 44:3, 47:21, 65:19, 78:8, 78:15, 78:19, 79:7, 79:10, 79:18, 81:8, 81:9, 81:15, 91:24, 92:7, 94:21, 95:21, 108:20, 109:1</p> <p>downloading [17] - 17:17, 22:13, 29:17, 36:9, 41:23, 45:17, 47:1, 47:15, 69:17, 70:15, 78:13, 79:4, 79:17, 96:1, 96:13, 111:17, 123:14</p> <p>downloads [10] - 43:25, 46:17, 48:2, 56:17, 56:21, 57:8, 57:11, 57:18, 63:22, 114:23</p> <p>draft [2] - 115:1, 115:3</p> <p>drafted [1] - 49:19</p> <p>draftee [1] - 115:21</p> <p>drive [5] - 11:13, 11:19, 12:2, 16:21, 102:8</p> <p>drives [1] - 26:10</p> <p>drop [1] - 30:4</p> <p>duly [2] - 5:20, 97:5</p> <p>duration [2] - 47:2, 93:10</p>
D			
<p>D-TRUST [1] - 12:9</p> <p>data [48] - 11:5, 11:8, 11:10, 12:4, 17:23, 18:4, 18:5, 19:9, 19:11, 19:22, 20:25, 21:9, 21:21, 23:8, 23:9, 24:6, 25:1, 25:2, 25:14, 26:15, 27:18, 28:5, 28:18, 32:21, 39:5, 41:8, 41:23, 42:6, 42:7, 60:14, 61:18, 61:21, 62:11, 80:6, 80:8, 90:16, 92:5, 93:4, 94:5, 95:16, 95:22, 95:23, 95:24, 109:14, 109:15, 115:8, 116:19</p> <p>databases [1] - 102:9</p>			

<p>duty [2] - 9:20, 56:16 DVD [1] - 11:6 dynamic [19] - 85:16, 85:20, 85:21, 85:23, 85:24, 86:1, 86:8, 86:17, 86:21, 86:22, 87:1, 87:6, 87:8, 87:10, 87:14, 87:17, 91:3, 91:20, 115:25</p> <p style="text-align: center;">E</p>	<p>established [3] - 66:19, 69:22, 106:21 estimate [1] - 45:16 evade [1] - 41:14 evening [1] - 4:2 eventually [2] - 109:14, 110:23 evidence [25] - 48:22, 48:25, 49:1, 49:9, 49:10, 52:21, 53:15, 53:21, 68:1, 68:3, 72:24, 73:4, 73:7, 73:9, 74:1, 90:11, 90:22, 102:10, 104:4, 110:2, 131:13, 131:13, 131:14, 131:14, 131:15 Ex [1] - 77:16 exact [2] - 27:6, 42:14 exactly [5] - 22:24, 65:25, 84:10, 115:2, 125:6 EXAMINATION [14] - 6:7, 77:9, 89:9, 94:15, 97:14, 116:11, 124:4, 131:3, 131:4, 131:5, 131:6, 131:8, 131:9, 131:10 examination [5] - 3:22, 73:21, 102:4, 112:6, 115:12 examinations [3] - 98:22, 98:25, 115:11 examined [3] - 5:21, 70:9, 97:5 example [13] - 21:5, 22:12, 22:18, 38:17, 46:20, 60:18, 62:22, 69:13, 69:24, 70:16, 87:2, 88:1, 95:14 exams [1] - 98:19 Excel [1] - 112:12 exchange [22] - 19:9, 19:11, 20:21, 21:7, 21:17, 22:19, 23:14, 28:2, 28:4, 35:10, 35:13, 39:5, 54:18, 55:13, 55:17, 62:17, 72:6, 95:23, 108:21, 110:8, 110:15, 112:23 exchanged [2] - 94:24, 109:23 exchanges [5] - 61:18, 62:14, 62:22, 63:1, 113:18 exchanging [2] - 27:18, 63:2 excipio [1] - 6:25 Excipio [33] - 7:11, 41:5, 54:16, 55:13, 77:17, 77:20, 77:21, 106:3, 107:11, 107:15, 108:10, 110:13, 110:15, 110:17, 111:1, 111:15, 112:3, 112:11, 112:18, 113:5, 113:10, 119:22, 120:2, 120:6, 121:4, 121:7, 121:10, 121:25, 122:1, 122:4, 124:7, 125:10, 125:16 Excipio's [2] - 112:7, 115:6 excuse [2] - 14:23, 125:22 exhibit [4] - 48:17, 48:21, 91:11, 114:8 Exhibit [48] - 30:20, 30:24, 48:23, 48:25, 49:1, 49:3, 49:4, 49:10, 53:17, 53:21, 58:18, 58:19, 58:20, 58:22, 59:2, 61:9, 61:12, 67:21, 67:25, 68:1, 68:3, 72:12, 72:23, 73:3, 73:7, 73:8,</p>	<p>74:19, 74:24, 82:2, 86:3, 86:6, 91:13, 91:16, 91:17, 92:13, 92:14, 94:23, 95:9, 112:13, 114:10, 114:19, 114:21, 115:7, 131:13, 131:13, 131:14, 131:14, 131:15 EXHIBITS [1] - 131:12 exhibits [1] - 53:9 existing [1] - 36:12 expect [4] - 15:17, 64:24, 70:17, 70:19 expecting [1] - 38:7 expedited [1] - 128:19 expenses [1] - 44:6 experience [8] - 7:7, 51:20, 60:13, 97:18, 97:20, 104:11, 104:15, 115:7 experiment [5] - 35:4, 36:1, 110:11, 113:3, 125:3 experiments [1] - 31:6 expert [7] - 28:7, 28:16, 28:25, 101:3, 101:13, 103:8, 115:13 expertise [1] - 125:20 experts's [1] - 3:3 explain [19] - 8:23, 11:3, 12:8, 16:20, 27:11, 31:15, 32:17, 38:10, 39:1, 39:14, 42:3, 54:25, 55:9, 59:4, 64:3, 64:22, 69:24, 75:16, 80:3 extended [4] - 56:17, 56:22, 68:7, 68:9 extension [1] - 59:19 extensive [2] - 102:6 extra [2] - 30:15, 44:6</p>	<p>file [57] - 9:15, 10:9, 11:3, 11:11, 12:11, 12:25, 13:19, 13:20, 14:25, 17:21, 19:12, 20:12, 24:14, 24:20, 25:15, 27:11, 27:12, 28:8, 28:9, 28:17, 33:3, 33:10, 33:12, 33:16, 33:25, 34:1, 34:3, 34:14, 54:25, 55:1, 55:3, 55:5, 55:14, 62:20, 65:15, 73:12, 78:8, 78:15, 81:8, 81:16, 94:7, 94:8, 107:8, 109:11, 109:12, 109:17, 109:22, 110:6, 110:9, 119:23, 120:1, 120:2, 120:3, 120:5, 120:7, 129:2 file's [1] - 79:5 filed [4] - 53:10, 53:17, 103:4 files [28] - 8:21, 9:14, 9:15, 10:7, 11:1, 14:24, 18:22, 25:13, 28:21, 37:1, 63:5, 69:11, 69:25, 70:14, 70:17, 78:9, 92:5, 108:17, 108:19, 109:5, 109:16, 110:12, 112:6, 112:16, 112:19, 114:5, 120:22, 122:11 finally [1] - 2:12 findings [1] - 71:3 fine [9] - 3:8, 3:20, 4:10, 74:15, 74:20, 127:11, 127:24, 129:7, 129:25 fingerprint [5] - 20:11, 24:3, 24:6, 55:1, 93:14 finish [4] - 42:16, 80:20, 80:21, 96:13 Firearms [1] - 99:5 FIRM [1] - 1:15 firm [1] - 72:13 firm's [1] - 72:16</p>
<p>e-mail [1] - 112:11 ease [1] - 33:17 easier [2] - 84:19, 127:18 easily [1] - 9:9 EASTERN [1] - 1:1 economical [1] - 37:15 editor [1] - 109:14 educational [1] - 6:15 effective [2] - 3:21, 113:5 efficiently [1] - 37:15 effort [1] - 74:3 eight [2] - 37:17, 42:10 either [2] - 65:1, 108:25 elaborate [4] - 12:8, 40:20, 43:7, 44:18 electronically [1] - 19:16 eliminate [1] - 44:13 employed [3] - 7:3, 77:19, 107:24 employee [1] - 116:18 employees [1] - 43:19 employment [2] - 99:17, 107:25 encoded [1] - 107:4 end [3] - 4:17, 62:19, 78:24 ends [1] - 96:11 enforce [1] - 87:6 Enforcement [1] - 99:2 enforcement [12] - 41:25, 97:20, 97:25, 98:2, 98:5, 100:14, 101:1, 103:22, 104:16, 104:19, 108:4, 110:22 engage [3] - 51:1, 65:19, 113:18 engaged [6] - 36:8, 38:1, 67:16, 77:22, 106:8, 112:7 engineer [1] - 8:3 English [2] - 70:16, 70:17 ensure [2] - 79:5, 108:21 enter [1] - 112:3 entire [1] - 16:14 entirely [1] - 16:10 entirety [1] - 16:7 entries [1] - 64:19 entry [5] - 2:17, 52:23, 53:10, 73:13, 103:4 envisioning [1] - 129:5 erroneous [1] - 39:25 ESQ [2] - 1:16, 1:20 essentially [4] - 3:12, 108:16, 111:25, 123:5 establish [6] - 23:5, 23:12, 25:20, 33:15, 42:5, 82:14</p>	<p>established [3] - 66:19, 69:22, 106:21 estimate [1] - 45:16 evade [1] - 41:14 evening [1] - 4:2 eventually [2] - 109:14, 110:23 evidence [25] - 48:22, 48:25, 49:1, 49:9, 49:10, 52:21, 53:15, 53:21, 68:1, 68:3, 72:24, 73:4, 73:7, 73:9, 74:1, 90:11, 90:22, 102:10, 104:4, 110:2, 131:13, 131:13, 131:14, 131:14, 131:15 Ex [1] - 77:16 exact [2] - 27:6, 42:14 exactly [5] - 22:24, 65:25, 84:10, 115:2, 125:6 EXAMINATION [14] - 6:7, 77:9, 89:9, 94:15, 97:14, 116:11, 124:4, 131:3, 131:4, 131:5, 131:6, 131:8, 131:9, 131:10 examination [5] - 3:22, 73:21, 102:4, 112:6, 115:12 examinations [3] - 98:22, 98:25, 115:11 examined [3] - 5:21, 70:9, 97:5 example [13] - 21:5, 22:12, 22:18, 38:17, 46:20, 60:18, 62:22, 69:13, 69:24, 70:16, 87:2, 88:1, 95:14 exams [1] - 98:19 Excel [1] - 112:12 exchange [22] - 19:9, 19:11, 20:21, 21:7, 21:17, 22:19, 23:14, 28:2, 28:4, 35:10, 35:13, 39:5, 54:18, 55:13, 55:17, 62:17, 72:6, 95:23, 108:21, 110:8, 110:15, 112:23 exchanged [2] - 94:24, 109:23 exchanges [5] - 61:18, 62:14, 62:22, 63:1, 113:18 exchanging [2] - 27:18, 63:2 excipio [1] - 6:25 Excipio [33] - 7:11, 41:5, 54:16, 55:13, 77:17, 77:20, 77:21, 106:3, 107:11, 107:15, 108:10, 110:13, 110:15, 110:17, 111:1, 111:15, 112:3, 112:11, 112:18, 113:5, 113:10, 119:22, 120:2, 120:6, 121:4, 121:7, 121:10, 121:25, 122:1, 122:4, 124:7, 125:10, 125:16 Excipio's [2] - 112:7, 115:6 excuse [2] - 14:23, 125:22 exhibit [4] - 48:17, 48:21, 91:11, 114:8 Exhibit [48] - 30:20, 30:24, 48:23, 48:25, 49:1, 49:3, 49:4, 49:10, 53:17, 53:21, 58:18, 58:19, 58:20, 58:22, 59:2, 61:9, 61:12, 67:21, 67:25, 68:1, 68:3, 72:12, 72:23, 73:3, 73:7, 73:8,</p>	<p style="text-align: center;">F</p> <p>fact [6] - 36:4, 66:22, 67:1, 91:6, 101:3, 103:17 factors [1] - 47:8 fair [5] - 42:19, 48:6, 65:4, 80:16, 94:4 fake [5] - 35:23, 40:15, 40:19, 40:21, 44:14 false [7] - 37:10, 37:20, 42:20, 44:13, 44:16, 44:21, 81:24 falsified [1] - 39:2 far [3] - 4:4, 68:23, 68:24 fast [2] - 15:14, 128:5 faster [4] - 9:18, 127:24, 128:13, 128:14 FBI [1] - 99:1 FDLE [1] - 99:1 February [5] - 56:3, 56:12, 66:18, 90:23, 114:3 federal [1] - 101:9 Federal [1] - 1:22 few [3] - 70:21, 92:19, 92:22 field [5] - 94:23, 94:24, 95:10, 96:4, 126:2 File [1] - 31:3</p>	<p>first [20] - 5:20, 7:3, 10:16, 30:14, 48:21, 54:5, 56:2, 61:20, 62:1, 64:2, 64:4, 64:6, 64:10, 72:20, 77:19, 82:25, 95:14, 106:18, 117:8 five [8] - 53:19, 62:22, 63:1, 63:8, 75:22, 75:24, 101:20, 127:15 five-minute [2] - 75:22, 75:24 fixed [5] - 25:8, 25:10, 36:25, 85:13, 119:15 flexible [1] - 87:11 Florida [1] - 99:1 Flushing [1] - 1:19 foam [1] - 78:24 follow [4] - 53:3, 77:13, 95:24, 123:22 follow-up [1] - 77:13 following [3] - 2:1, 71:6, 77:1 follows [2] - 5:21, 97:6 Forensic [1] - 108:2 forensic [7] - 98:19, 98:22, 99:20, 99:25, 102:1, 102:4, 115:10 forensics [3] - 98:15, 99:17, 101:13</p>

<p>forgot [2] - 29:6, 75:10 form [3] - 21:19, 108:18, 127:7 formal [1] - 7:1 formally [1] - 73:18 format [2] - 27:24, 80:6 Forrest [1] - 101:24 forth [1] - 103:19 forward [3] - 15:14, 44:8, 88:2 foundation [2] - 68:11, 107:22 founded [2] - 77:20, 108:3 four [26] - 27:5, 46:21, 56:14, 56:24, 57:9, 83:16, 92:20, 101:19, 106:18, 106:21, 106:24, 107:3, 107:15, 108:10, 110:18, 110:20, 117:14, 118:14, 118:15, 119:11, 120:6, 123:5 Fox [1] - 116:15 frame [3] - 15:24, 38:5, 38:12 frames [1] - 15:22 frauds [1] - 98:14 free [9] - 4:18, 38:7, 38:8, 69:1, 74:2, 77:5, 90:24, 104:5, 113:24 front [2] - 30:23, 101:23 full [12] - 22:1, 78:12, 78:13, 78:14, 78:17, 78:18, 79:4, 81:10, 81:16, 93:22, 93:24 function [1] - 18:1</p>	<p>guess [2] - 14:9, 24:21 Guidance [1] - 99:24 guide [1] - 49:5</p>	<p>hosting [1] - 122:17 hot [2] - 46:8, 46:10 hour [3] - 15:9, 15:11, 87:3 hours [3] - 99:15, 110:17, 120:7 hundred [2] - 29:24, 39:18 hundreds [5] - 45:11, 45:12, 45:14, 99:15 hundredth [1] - 40:4 hypothetical [5] - 39:21, 40:2, 84:15, 90:14, 125:13 hypothetically [1] - 91:19</p>	<p>42:22, 43:9, 44:15, 69:23, 71:2, 82:16, 113:11 individual [40] - 10:17, 12:19, 14:14, 17:4, 20:3, 20:4, 22:12, 23:20, 24:1, 24:3, 24:17, 25:17, 26:6, 26:11, 26:17, 28:24, 39:22, 43:16, 43:19, 44:22, 46:17, 46:24, 47:1, 47:21, 50:9, 55:5, 55:14, 55:23, 61:20, 62:17, 63:1, 72:9, 102:1, 105:8, 118:15, 124:16, 125:1, 125:8, 125:9, 125:14 individual's [1] - 105:2 individually [2] - 31:12, 43:20 individuals [3] - 13:4, 13:6, 112:11 industry [2] - 28:15, 41:21 inform [1] - 99:12 information [81] - 7:5, 10:18, 10:22, 10:25, 11:16, 11:20, 11:24, 11:25, 14:5, 14:10, 15:3, 15:4, 16:18, 17:7, 19:3, 19:20, 19:22, 19:25, 20:15, 21:8, 22:6, 22:8, 22:20, 24:23, 25:5, 25:11, 29:13, 29:17, 29:19, 29:20, 29:25, 39:15, 46:20, 48:14, 51:25, 52:5, 57:2, 57:3, 57:4, 57:20, 59:8, 59:9, 59:10, 59:13, 59:14, 60:11, 61:17, 61:24, 61:25, 62:2, 68:7, 68:9, 68:12, 68:15, 68:16, 69:7, 69:9, 69:21, 83:11, 92:25, 94:24, 102:13, 103:14, 103:20, 104:1, 104:8, 105:3, 107:18, 107:19, 108:11, 109:17, 110:7, 110:8, 110:21, 111:11, 112:4, 113:18, 115:21, 116:17, 122:8 infringed [2] - 32:14, 32:25 infringement [20] - 32:13, 40:12, 41:2, 41:22, 49:21, 50:5, 51:2, 52:1, 52:6, 56:10, 62:12, 65:20, 67:2, 67:8, 68:12, 72:3, 92:16, 114:3, 114:23 infringements [2] - 26:14, 91:5 infringer [21] - 25:21, 42:6, 79:8, 79:13, 79:16, 79:19, 79:23, 81:8, 81:15, 82:24, 83:1, 84:5, 86:22, 88:21, 94:21, 94:25, 95:1, 96:1, 123:13, 123:18 infringers [4] - 40:25, 41:9, 41:10, 96:12 infringing [2] - 37:13, 41:4 initial [3] - 111:24, 118:3, 118:5 initiate [2] - 48:2, 48:4 innocent [1] - 38:5 inside [2] - 33:12, 69:10 install [2] - 59:24, 118:18 installation [1] - 106:23 installed [6] - 83:14, 106:22, 108:12, 108:13, 119:17, 119:20 instance [1] - 38:24</p>
<p>Game [1] - 22:18 generally [2] - 22:15, 27:2 generate [11] - 24:8, 24:15, 24:18, 25:3, 29:12, 35:20, 66:8, 88:14, 88:16, 88:18, 89:21 generated [12] - 24:12, 24:14, 24:20, 35:23, 60:25, 61:2, 64:14, 72:13, 72:15, 72:18, 119:16, 119:18 generates [2] - 59:25, 83:4 German [2] - 12:9, 12:18 Germany [1] - 3:5 give-and-take [1] - 21:11 given [9] - 50:25, 51:20, 106:11, 107:11, 107:18, 107:19, 109:17, 110:21, 121:13 goal [1] - 16:13 GoDaddy [7] - 106:19, 118:11, 119:10, 122:6, 122:9, 122:19, 125:3 GoDaddy.com [2] - 118:12, 122:13 government [4] - 12:3, 12:7, 12:9, 12:19 GPS [5] - 29:21, 29:22, 39:17, 39:18, 39:19 graduated [3] - 6:17, 6:19, 7:9 graduation [2] - 77:15, 77:16 group [1] - 18:20</p>	<p>H</p> <p>half [5] - 15:10, 15:11, 56:14, 56:24, 57:9 Hamilton [1] - 1:15 hand [5] - 30:12, 55:8, 68:20, 68:24, 115:16 handed [2] - 49:3, 61:10 hands [1] - 27:18 handshake [18] - 19:7, 19:10, 19:11, 19:15, 20:24, 23:6, 23:8, 23:12, 23:16, 23:17, 39:4, 94:25, 95:2, 95:13, 95:20, 96:7, 112:4 handshaking [1] - 20:4 happy [1] - 75:6 hardware [1] - 29:20 hash [23] - 19:9, 20:9, 20:10, 20:16, 20:18, 20:21, 23:14, 23:20, 23:24, 24:8, 24:12, 24:22, 24:23, 24:25, 25:1, 25:3, 54:25, 55:1, 55:3, 55:5, 55:14, 78:19 hear [5] - 6:9, 23:24, 27:15, 117:3, 117:9 heard [1] - 113:7 hearing [6] - 2:12, 3:25, 5:6, 30:6, 30:12, 130:3 HEARING [1] - 1:11 hearsay [1] - 73:20 helped [1] - 130:3 helpful [3] - 64:1, 104:5, 127:21 hex [1] - 109:14 high [5] - 6:17, 6:19, 7:9, 43:9, 77:15 Hit [3] - 54:11, 54:22, 62:16 hit [2] - 56:1, 56:2 hits [4] - 57:3, 57:24, 58:25, 59:6 hold [2] - 8:25, 21:16 holders [1] - 37:13 home [2] - 83:14, 105:14 honest [1] - 123:22 Honor [35] - 2:5, 2:8, 2:23, 3:15, 4:6, 5:2, 30:10, 48:16, 49:3, 49:8, 51:5, 51:9, 52:8, 52:19, 53:4, 53:8, 53:13, 58:8, 61:5, 61:10, 67:24, 68:2, 73:6, 73:10, 74:10, 75:19, 77:4, 77:8, 94:14, 96:24, 114:13, 116:6, 126:21, 127:2, 127:4 Honor's [1] - 35:9 HONORABLE [1] - 1:11 hope [1] - 110:24 hopefully [2] - 52:15, 128:22 Horse [1] - 88:1 hosted [1] - 9:13</p>	<p>I</p> <p>idea [1] - 126:10 identical [1] - 93:16 identification [3] - 10:5, 43:4, 104:21 identifications [1] - 24:1 identified [6] - 17:18, 21:2, 104:23, 110:17, 120:10, 121:10 identify [12] - 10:16, 23:2, 58:24, 64:2, 68:5, 92:11, 94:18, 106:10, 107:14, 110:20, 111:1, 122:4 identifying [4] - 3:18, 47:8, 111:16, 116:19 identities [1] - 44:14 identity [3] - 50:18, 107:20, 110:23 illegal [3] - 9:7, 18:5, 49:24 ills [1] - 42:19 impermissible [1] - 51:22 implemented [1] - 7:15 important [1] - 21:1 imprint [1] - 20:12 inaccurate [1] - 45:6 inclined [2] - 74:4, 74:5 including [1] - 101:19 inconsistency [1] - 92:1 incorrect [1] - 45:24 increase [1] - 22:13 increased [1] - 43:5 increases [1] - 95:25 independent [7] - 10:7, 10:11, 28:16, 29:20, 123:5, 123:8, 123:9 index [1] - 34:2 indicate [9] - 56:25, 61:2, 66:1, 67:3, 91:17, 105:9, 105:15, 114:22, 115:20 indicated [4] - 12:12, 44:5, 45:5, 91:5 indicates [3] - 64:3, 66:23, 90:17 indication [3] - 39:20, 47:6, 90:19 indirect [22] - 8:1, 17:14, 31:15, 31:18, 31:21, 31:25, 32:4, 32:16, 32:19, 34:21, 35:11, 35:15, 35:25, 37:21, 38:11,</p>	<p>6</p>

<p>instruct [1] - 50:20 instructor [1] - 99:23 insure [1] - 56:20 intent [4] - 16:6, 21:1, 22:4, 109:21 intention [1] - 3:1 interested [1] - 33:3 internally [2] - 61:22, 68:8 international [1] - 29:5 internationally [1] - 29:8 Internet [9] - 7:7, 8:16, 8:20, 32:24, 34:6, 37:12, 46:13, 51:21, 52:1 internet [3] - 98:13, 119:5, 126:9 intervention [1] - 111:10 introduced [1] - 104:4 investigate [1] - 98:13 investigates [1] - 32:22 investigating [1] - 99:12 investigation [5] - 34:22, 104:24, 106:17, 113:3, 115:14 investigative [1] - 99:16 investigator [5] - 33:2, 33:20, 33:21, 33:24, 34:17 investigators [1] - 99:25 involved [6] - 8:2, 13:4, 16:4, 17:2, 26:17, 90:17 involvement [1] - 7:13 involving [1] - 99:16 IP [159] - 1:7, 31:23, 32:24, 33:14, 33:17, 33:19, 33:21, 33:22, 34:2, 34:4, 34:11, 34:16, 35:4, 35:12, 35:16, 35:22, 35:23, 36:4, 36:8, 36:16, 36:17, 37:2, 37:10, 37:23, 38:5, 38:12, 38:14, 38:15, 39:3, 39:6, 39:25, 40:14, 40:15, 40:16, 40:21, 45:1, 45:4, 45:16, 45:19, 45:23, 46:15, 47:6, 54:18, 54:20, 54:23, 55:13, 56:8, 57:12, 57:18, 58:23, 60:5, 62:5, 62:7, 63:1, 63:22, 64:11, 64:12, 64:25, 65:19, 67:7, 67:16, 67:17, 67:18, 68:17, 68:18, 69:10, 70:11, 72:9, 83:22, 83:24, 84:4, 84:5, 84:6, 84:7, 84:9, 85:3, 85:13, 85:21, 85:22, 85:23, 86:1, 86:7, 86:12, 86:17, 86:21, 86:22, 86:23, 87:1, 87:4, 87:8, 87:9, 87:13, 87:14, 87:17, 88:3, 88:6, 88:7, 88:10, 88:14, 88:16, 88:17, 88:18, 88:22, 88:23, 88:24, 89:19, 89:23, 89:24, 90:2, 90:25, 91:6, 91:9, 91:20, 96:2, 103:12, 104:11, 104:20, 104:23, 106:10, 106:19, 107:20, 110:19, 110:20, 110:22, 111:1, 111:5, 111:6, 111:7, 111:9, 111:16, 112:7, 114:2, 114:24, 115:4,</p>	<p>115:16, 115:22, 117:3, 118:16, 118:17, 119:8, 120:10, 120:11, 120:14, 120:22, 120:25, 121:1, 121:5, 121:6, 121:10, 123:9, 123:17, 126:6, 126:11, 126:14 IPP [2] - 8:1, 8:2 Islip [2] - 1:6, 1:23 ISP [14] - 49:15, 85:6, 85:15, 85:18, 86:15, 87:15, 87:18, 88:11, 103:20, 104:25, 105:13, 116:18, 122:13, 122:19 ISP's [1] - 86:8 ISPs [4] - 85:16, 116:17, 117:2 issue [3] - 62:3, 104:25, 122:5 issued [4] - 12:3, 12:9, 103:20, 104:8 issues [1] - 42:24 IT [6] - 6:21, 7:8, 28:11, 28:16, 28:25, 110:5 itself [7] - 31:9, 31:12, 33:25, 35:5, 51:13, 67:17, 109:12</p> <p style="text-align: center;">J</p> <p>JACQUELINE [1] - 1:16 Jacqueline [1] - 2:6 JAMES [103] - 1:15, 1:16, 2:5, 2:23, 3:15, 4:23, 5:2, 5:4, 5:15, 6:6, 6:8, 6:12, 6:13, 15:20, 30:10, 30:15, 30:20, 30:22, 35:1, 48:16, 48:19, 49:2, 49:12, 51:9, 51:15, 51:18, 52:8, 52:15, 52:18, 52:22, 53:4, 53:7, 53:16, 53:19, 53:22, 54:8, 55:19, 55:22, 58:3, 58:4, 61:5, 61:8, 61:10, 62:10, 63:16, 68:2, 68:4, 72:1, 72:25, 73:10, 73:16, 74:10, 74:18, 74:20, 74:23, 75:2, 75:6, 75:8, 75:19, 80:17, 84:14, 89:8, 89:10, 90:7, 91:15, 94:11, 96:17, 96:24, 97:1, 97:15, 103:3, 103:6, 114:13, 114:17, 116:4, 117:6, 124:3, 124:5, 125:6, 125:7, 126:19, 127:2, 127:11, 127:13, 127:15, 128:1, 128:6, 128:12, 128:17, 128:22, 129:4, 129:9, 129:12, 129:17, 129:19, 129:23, 130:1, 130:4, 130:8, 131:3, 131:5, 131:8, 131:10 James [14] - 2:6, 3:14, 4:22, 6:5, 80:21, 81:22, 89:7, 96:16, 96:22, 117:25, 124:2, 127:1, 127:10, 127:24 Jensa [1] - 62:23 job [1] - 14:8 John [4] - 2:3, 2:9, 101:22, 116:25 JOHN [1] - 1:7 join [2] - 22:15, 48:12 joined [6] - 48:8, 48:10, 77:16,</p>	<p>77:18, 77:21, 95:19 joining [1] - 18:14 Judge [2] - 101:23, 116:15 JUDGE [1] - 1:12 judge [1] - 117:1 judge's [1] - 63:20 jump [2] - 15:12, 75:23 June [1] - 100:8 jurisdiction [1] - 98:24 jury [2] - 4:20, 74:1 Justice [3] - 100:15, 100:16, 100:25</p> <p style="text-align: center;">K</p> <p>keep [3] - 6:1, 6:11, 26:4 keeps [2] - 87:4, 87:8 Kevin [1] - 116:15 kilobits [1] - 91:24 kilobyte [7] - 26:5, 43:25, 63:11, 79:22, 92:17, 92:24, 94:1 kilobytes [19] - 23:9, 23:10, 25:6, 25:18, 26:9, 63:7, 63:8, 63:12, 80:2, 81:11, 91:25, 92:7, 92:19, 92:23, 93:16, 93:20, 94:18, 94:20, 94:22 kind [8] - 11:19, 27:13, 33:7, 34:2, 59:9, 70:13, 84:12, 93:9 kinds [2] - 60:24, 122:17 knowledge [6] - 52:4, 74:13, 103:17, 103:22, 116:17, 117:2 known [3] - 8:17, 8:20, 40:11 knows [2] - 33:24, 120:2</p> <p style="text-align: center;">L</p> <p>largest [1] - 96:4 last [11] - 4:8, 29:6, 30:12, 39:21, 52:15, 56:4, 58:17, 68:20, 75:11, 97:9, 97:21 LAW [2] - 1:15, 1:18 Law [1] - 99:2 law [11] - 97:20, 97:24, 98:2, 98:5, 100:14, 100:25, 103:22, 104:15, 104:19, 108:4, 110:21 lawsuit [3] - 26:13, 53:24, 70:24 laying [1] - 107:22 lead [1] - 74:3 learning [3] - 70:16, 70:17, 70:20 least [2] - 38:8, 115:21 leaving [1] - 39:23 lectern [2] - 6:11, 77:5 led [2] - 110:23, 125:4 ledgers [1] - 55:16 left [4] - 55:8, 62:6, 113:13, 115:16 left-hand [2] - 55:8, 115:16 less [5] - 79:24, 80:12, 81:3, 81:4, 81:5 Lessons [1] - 41:17</p>	<p>letter [10] - 2:15, 4:15, 29:6, 73:14, 127:8, 127:11, 127:17, 129:2, 129:14, 130:5 letting [1] - 129:2 level [2] - 101:6, 101:7 levels [1] - 100:3 life [1] - 106:8 likely [3] - 67:11, 86:14, 86:16 limine [1] - 2:14 limited [7] - 85:3, 85:5, 85:6, 85:9, 85:10, 85:11, 92:17 limits [1] - 127:9 line [2] - 52:15, 83:10 list [23] - 8:10, 8:13, 9:7, 9:25, 32:24, 33:9, 33:14, 34:2, 34:8, 34:10, 34:17, 35:4, 35:5, 35:18, 35:22, 35:23, 36:17, 37:2, 37:25, 40:15, 40:16, 45:1 listed [4] - 54:20, 68:18, 70:6, 70:19 listen [1] - 10:8 listing [1] - 69:15 lists [3] - 37:24, 41:4, 54:5 literally [1] - 28:4 litigant [2] - 103:13, 104:10 litigants [1] - 50:20 litigation [1] - 104:2 LLC [3] - 1:4, 2:3, 108:2 loaded [1] - 107:6 loading [1] - 120:1 locate [2] - 112:3, 117:2 located [5] - 13:8, 33:11, 34:15, 107:20, 119:1 location [5] - 14:13, 111:2, 111:3, 111:5, 111:13 locations [1] - 110:19 LOCKE [1] - 1:11 log [16] - 22:23, 29:19, 29:24, 29:25, 43:11, 54:14, 54:15, 54:16, 61:24, 62:1, 62:13, 83:11, 114:5, 118:24, 122:7 log-in [4] - 43:11, 54:14, 54:15, 54:16 logging [2] - 17:21, 122:9 login [1] - 122:11 Lombardi [1] - 1:22 look [17] - 11:25, 13:15, 16:3, 38:7, 56:1, 58:14, 62:20, 65:17, 66:11, 69:1, 70:5, 86:6, 90:24, 109:12, 113:25, 114:22, 115:16 looked [6] - 57:3, 58:19, 73:4, 91:16, 92:4, 114:5 looking [7] - 38:23, 39:7, 58:16, 58:20, 59:7, 72:12, 96:3 looks [1] - 129:2 loss [1] - 46:20 louder [1] - 6:18 Love [1] - 92:21 low [1] - 95:25 luck [1] - 25:9</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>M</p> <p>MAGISTRATE [1] - 1:12</p> <p>mail [1] - 112:11</p> <p>main [1] - 21:18</p> <p>maintain [1] - 28:21</p> <p>maintenance [1] - 7:21</p> <p>maker [1] - 99:24</p> <p>Malibu [34] - 2:2, 2:7, 7:25, 8:2, 8:5, 9:25, 10:17, 13:23, 20:5, 21:5, 22:12, 22:22, 23:2, 24:7, 25:13, 25:17, 26:6, 27:9, 27:20, 27:21, 28:22, 29:12, 30:1, 45:22, 46:16, 62:2, 69:17, 70:6, 79:18, 93:22, 101:15, 101:22, 106:2, 116:25</p> <p>MALIBU [1] - 1:4</p> <p>malicious [1] - 38:4</p> <p>maliciously [1] - 38:11</p> <p>man [2] - 40:17, 84:1</p> <p>man-in-the-middle [1] - 40:17</p> <p>managed [1] - 78:5</p> <p>mandates [1] - 40:25</p> <p>manipulated [1] - 109:18</p> <p>manipulating [1] - 109:14</p> <p>marching [1] - 106:12</p> <p>marked [5] - 30:23, 61:11, 67:21, 74:21, 74:24</p> <p>mask [1] - 126:6</p> <p>match [1] - 8:21</p> <p>material [14] - 9:8, 9:10, 9:13, 10:1, 17:19, 18:12, 19:4, 32:15, 32:25, 36:9, 45:18, 49:24, 56:22, 62:3</p> <p>materials [2] - 8:13, 18:6</p> <p>mathematical [1] - 24:13</p> <p>matter [4] - 5:6, 27:7, 52:24, 130:10</p> <p>matters [1] - 51:10</p> <p>mean [31] - 9:12, 14:17, 16:22, 16:23, 19:19, 22:25, 25:24, 36:7, 36:15, 37:6, 40:20, 46:1, 47:12, 54:16, 62:25, 71:1, 81:22, 82:8, 84:11, 88:13, 94:17, 95:11, 96:3, 102:12, 109:11, 111:3, 111:5, 113:14, 119:12, 123:4, 126:5</p> <p>meaning [2] - 86:8, 126:1</p> <p>means [16] - 11:4, 17:18, 20:10, 31:18, 32:11, 32:19, 40:21, 66:7, 75:14, 75:17, 85:21, 85:22, 95:11, 95:18, 120:18</p> <p>measurement [1] - 94:2</p> <p>mechanical [1] - 1:25</p> <p>mechanism [1] - 18:11</p> <p>media [1] - 77:23</p> <p>Media [27] - 2:3, 2:7, 8:2, 13:23, 20:5, 21:5, 22:12, 22:22, 23:2, 24:7, 25:13, 25:17, 26:6, 27:9, 27:20, 27:21, 28:22, 29:12, 30:1, 46:16, 62:2, 69:17, 93:22,</p>	<p>101:15, 101:22, 106:2, 116:25</p> <p>MEDIA [1] - 1:4</p> <p>Media's [4] - 9:25, 10:17, 45:22, 79:18</p> <p>meeting [1] - 27:18</p> <p>memo [1] - 4:15</p> <p>memorize [1] - 38:8</p> <p>memory [2] - 75:10, 75:12</p> <p>mentioned [16] - 13:1, 23:6, 26:9, 29:15, 36:25, 39:17, 61:16, 64:4, 64:6, 64:13, 69:11, 78:7, 78:20, 79:24, 81:22</p> <p>mentioning [2] - 81:24, 82:6</p> <p>method [7] - 39:9, 39:10, 42:25, 82:6, 122:23, 123:12, 123:19</p> <p>Michael [2] - 5:17, 5:24</p> <p>MICHAEL [2] - 5:19, 131:2</p> <p>microphone [3] - 6:2, 78:23, 97:12</p> <p>Microsoft [1] - 69:25</p> <p>middle [2] - 40:17, 84:1</p> <p>might [7] - 4:9, 15:24, 38:11, 44:6, 50:9, 84:18, 92:1</p> <p>mike [1] - 77:6</p> <p>military [1] - 101:10</p> <p>Millennium [1] - 49:25</p> <p>million [1] - 45:19</p> <p>millions [2] - 109:16</p> <p>mind [5] - 11:2, 13:17, 36:21, 64:1, 127:8</p> <p>minute [7] - 37:19, 46:25, 75:22, 75:24, 80:12, 81:3, 92:11</p> <p>minutes [4] - 40:6, 63:12, 63:13, 116:9</p> <p>mis [2] - 3:19, 38:4</p> <p>mis-docketing [1] - 3:19</p> <p>mis-reporting [1] - 38:4</p> <p>misidentify [1] - 46:7</p> <p>misreading [1] - 3:18</p> <p>misspeak [1] - 109:10</p> <p>misstated [1] - 105:21</p> <p>mistimed [2] - 39:13, 39:15</p> <p>modified [6] - 11:5, 11:9, 11:17, 24:5, 109:6, 109:11</p> <p>modify [3] - 24:6, 24:7, 24:25</p> <p>monitor [6] - 8:13, 10:1, 42:25, 47:16, 56:23, 108:17</p> <p>monitored [2] - 7:16, 56:9</p> <p>Monitoring [1] - 31:2</p> <p>monitoring [39] - 5:8, 7:14, 8:5, 8:7, 8:15, 17:14, 17:15, 28:22, 32:1, 32:4, 32:16, 35:10, 35:11, 35:15, 35:25, 36:12, 38:11, 39:9, 40:12, 41:10, 41:22, 42:11, 42:17, 42:22, 43:6, 43:10, 44:15, 46:7, 48:7, 56:21, 69:23, 71:2, 72:2, 72:19, 74:13, 113:5, 113:11, 113:15</p> <p>monitors [2] - 44:6, 48:13</p> <p>month [4] - 57:9, 100:7, 100:10, 100:21</p>	<p>months [4] - 46:21, 56:9, 56:14, 56:24</p> <p>morning [5] - 2:5, 2:8, 2:11, 77:11, 77:12</p> <p>most [5] - 81:4, 81:5, 85:13, 85:19, 96:12</p> <p>motion [11] - 2:12, 2:14, 2:15, 2:18, 30:11, 102:17, 102:22, 102:23, 127:19, 128:6, 128:10</p> <p>motions [1] - 129:15</p> <p>movant [1] - 128:6</p> <p>move [6] - 4:10, 44:7, 72:25, 74:3, 127:24, 128:5</p> <p>movie [48] - 8:10, 9:16, 10:17, 13:23, 19:23, 21:5, 21:18, 22:1, 22:2, 23:23, 23:24, 24:8, 55:11, 78:12, 78:13, 78:14, 78:15, 78:17, 78:18, 78:19, 79:4, 79:6, 79:17, 79:18, 79:25, 80:4, 80:5, 81:2, 81:10, 81:16, 93:5, 93:13, 93:15, 93:17, 93:19, 94:18, 94:21, 111:21, 111:23, 111:25, 120:1</p> <p>movies [7] - 79:7, 107:3, 107:7, 107:14, 108:14, 119:21</p> <p>moving [1] - 2:13</p> <p>MR [46] - 2:8, 2:21, 4:6, 4:25, 48:24, 49:8, 51:4, 53:13, 58:8, 67:24, 73:6, 74:6, 74:8, 75:24, 76:1, 77:4, 77:8, 77:10, 79:2, 80:15, 80:25, 81:1, 82:4, 82:19, 82:22, 82:23, 84:20, 85:10, 85:12, 86:20, 89:5, 94:14, 94:16, 95:7, 96:15, 116:6, 116:9, 116:12, 122:22, 124:1, 126:21, 127:4, 130:9, 131:4, 131:6, 131:9</p> <p>MS [101] - 2:5, 2:23, 3:15, 4:23, 5:2, 5:4, 5:15, 6:6, 6:8, 6:12, 6:13, 15:20, 30:10, 30:15, 30:20, 30:22, 35:1, 48:16, 48:19, 49:2, 49:12, 51:9, 51:15, 51:18, 52:8, 52:15, 52:18, 52:22, 53:4, 53:7, 53:16, 53:19, 53:22, 54:8, 55:19, 55:22, 58:3, 58:4, 61:5, 61:8, 61:10, 62:10, 63:16, 68:2, 68:4, 72:1, 72:25, 73:10, 73:16, 74:10, 74:18, 74:20, 74:23, 75:2, 75:6, 75:8, 75:19, 80:17, 84:14, 89:8, 89:10, 90:7, 91:15, 94:11, 96:17, 96:24, 97:1, 97:15, 103:3, 103:6, 114:13, 114:17, 116:4, 117:6, 124:3, 124:5, 125:6, 125:7, 126:19, 127:2, 127:11, 127:13, 127:15, 128:1, 128:6, 128:12, 128:17, 128:22, 129:4, 129:9, 129:12, 129:17, 129:19, 129:23, 130:1, 130:4, 130:8, 131:3, 131:5, 131:8, 131:10</p> <p>multimedia [1] - 45:21</p>	<p>multiple [18] - 24:18, 25:18, 26:2, 33:13, 34:15, 47:3, 50:8, 52:22, 56:10, 56:17, 57:8, 61:17, 61:18, 62:14, 81:18, 81:19, 90:20, 92:6</p> <p>municipalities [1] - 98:24</p> <p>music [2] - 9:17</p> <p>must [5] - 45:12, 47:21, 47:23, 50:21, 66:7</p> <p>N</p> <p>name [16] - 2:5, 2:8, 6:24, 62:20, 65:12, 65:15, 65:18, 65:22, 97:7, 97:9, 104:11, 105:23, 119:23, 120:3, 120:5</p> <p>named [1] - 5:22</p> <p>names [4] - 106:25, 107:11, 107:13, 107:19</p> <p>Nathaniel [1] - 116:15</p> <p>native [1] - 70:18</p> <p>nature [2] - 52:8, 106:6</p> <p>necessarily [1] - 57:19</p> <p>necessary [2] - 17:11, 73:11</p> <p>need [14] - 4:1, 4:7, 5:4, 19:10, 28:6, 32:15, 41:8, 47:25, 51:13, 116:8, 127:10, 127:14, 127:22, 129:22</p> <p>needed [2] - 3:8, 107:2</p> <p>negatives [2] - 81:25, 89:16</p> <p>network [8] - 9:10, 15:5, 27:12, 27:16, 27:25, 51:2, 108:17, 118:24</p> <p>Networks [1] - 31:3</p> <p>never [10] - 15:16, 23:23, 23:24, 33:22, 39:2, 44:16, 44:20, 45:1, 83:20, 111:22</p> <p>NEW [1] - 1:1</p> <p>new [3] - 24:8, 25:3, 111:22</p> <p>New [5] - 1:16, 1:19, 1:23, 101:23, 116:16</p> <p>newer [1] - 37:16</p> <p>next [15] - 8:15, 8:16, 10:4, 13:20, 22:18, 39:21, 58:12, 58:14, 76:4, 81:7, 98:2, 108:11, 110:14, 111:9, 112:9</p> <p>night [1] - 4:8</p> <p>nine [1] - 64:19</p> <p>NK [1] - 99:24</p> <p>non [1] - 70:6</p> <p>non-Malibu [1] - 70:6</p> <p>noncopyrighted [1] - 111:21</p> <p>none [1] - 71:1</p> <p>normal [3] - 9:18, 89:21, 107:9</p> <p>normally [3] - 83:4, 83:13, 83:19</p> <p>note [2] - 32:14, 38:8</p> <p>notes [1] - 18:21</p> <p>nothing [3] - 51:7, 90:16, 123:10</p> <p>Notice [1] - 31:4</p> <p>notice [10] - 3:21, 49:20, 50:5,</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>50:17, 50:25, 51:9, 51:10, 51:20, 51:25, 104:6</p> <p>notices [3] - 32:7, 50:6, 50:8</p> <p>notification [2] - 35:6, 50:1</p> <p>number [42] - 16:24, 30:8, 30:19, 38:9, 52:23, 53:10, 54:5, 54:7, 54:9, 56:9, 59:20, 59:25, 60:1, 60:3, 60:5, 60:15, 65:2, 65:11, 65:25, 66:8, 66:22, 68:23, 69:2, 69:15, 70:6, 82:4, 83:8, 83:10, 84:12, 84:21, 86:2, 86:9, 86:13, 87:22, 90:8, 95:8, 95:11, 96:5, 117:1, 117:19, 119:13, 120:3</p> <p>Number [6] - 30:20, 30:24, 49:3, 49:4, 53:17, 61:12</p> <p>numbers [19] - 31:20, 35:21, 38:17, 44:2, 45:19, 59:20, 60:16, 64:23, 65:23, 85:4, 85:5, 85:6, 85:16, 85:17, 89:13, 89:19, 90:20, 119:15</p> <p>numerical [1] - 65:23</p> <p>numerous [1] - 18:15</p> <p>NY [1] - 1:6</p>	<p>one [58] - 3:5, 3:6, 3:23, 7:19, 9:20, 12:14, 19:1, 20:3, 21:9, 21:13, 21:14, 25:13, 26:14, 27:23, 30:16, 30:17, 30:18, 33:17, 39:18, 39:22, 47:1, 53:5, 54:22, 55:16, 56:4, 58:25, 60:14, 60:17, 62:11, 62:17, 63:5, 64:8, 78:12, 81:18, 87:3, 92:6, 92:15, 92:16, 92:17, 92:19, 92:22, 92:23, 95:14, 97:21, 106:25, 107:9, 113:13, 113:14, 114:23, 117:20, 118:14, 119:16, 124:12, 126:10, 128:23, 129:2, 129:25</p> <p>one-page [1] - 129:2</p> <p>ones [9] - 25:7, 25:9, 63:17, 80:7, 80:8, 80:9, 93:5, 107:1, 112:13</p> <p>online [1] - 87:2</p> <p>open [6] - 20:21, 28:7, 28:17, 109:3, 109:4, 110:6</p> <p>opened [1] - 48:6</p> <p>opening [2] - 4:19, 5:5</p> <p>operate [1] - 125:9</p> <p>operated [1] - 12:18</p> <p>opinion [3] - 35:25, 67:15, 92:24</p> <p>opportunity [5] - 98:18, 100:2, 102:16, 102:25, 106:2</p> <p>opposing [2] - 28:25, 61:13</p> <p>opposition [1] - 102:22</p> <p>option [1] - 87:15</p> <p>orally [1] - 14:9</p> <p>order [18] - 12:21, 20:8, 25:8, 25:10, 50:18, 50:21, 56:9, 65:19, 93:6, 106:12, 108:20, 111:20, 122:4, 125:10, 125:16, 127:6, 127:25, 128:14</p> <p>ordered [1] - 50:22</p> <p>organization [1] - 98:11</p> <p>original [13] - 10:9, 13:20, 78:9, 78:14, 78:18, 79:4, 79:17, 93:8, 93:13, 93:15, 93:17, 93:19, 93:25</p> <p>originally [1] - 72:20</p> <p>ourselves [2] - 17:25, 18:2</p> <p>outline [1] - 73:17</p> <p>outlining [1] - 51:21</p> <p>outside [1] - 59:14</p> <p>outstanding [2] - 100:14, 100:25</p> <p>Overruled [1] - 80:19</p> <p>overruled [1] - 84:18</p> <p>own [9] - 17:24, 33:8, 59:21, 74:1, 83:24, 84:6, 84:23, 90:4, 124:16</p> <p>owner [1] - 88:18</p>	<p>PA-T-Z-E-R [1] - 5:24</p> <p>package [1] - 92:20</p> <p>page [18] - 38:9, 39:21, 39:22, 47:25, 50:15, 57:21, 58:12, 58:14, 58:17, 64:21, 69:1, 69:13, 69:14, 71:6, 76:4, 127:9, 127:16, 129:2</p> <p>pages [15] - 8:21, 9:8, 31:19, 31:20, 31:22, 32:17, 33:6, 33:8, 38:16, 38:20, 127:10, 127:12, 127:13, 127:19</p> <p>Paige [9] - 97:1, 97:9, 97:11, 97:16, 101:3, 116:13, 124:6, 125:1, 126:23</p> <p>PAIGE [2] - 97:4, 131:7</p> <p>Palm [3] - 97:21, 98:12, 98:22</p> <p>paper [4] - 2:20, 2:21, 5:9, 5:10</p> <p>papers [1] - 3:12</p> <p>paragraph [1] - 41:25</p> <p>parameters [1] - 3:7</p> <p>pardon [1] - 27:1</p> <p>Park [4] - 2:9, 2:19, 4:24, 30:17</p> <p>PARK [48] - 1:18, 1:20, 2:8, 2:21, 4:6, 4:25, 48:24, 49:8, 51:4, 53:13, 58:8, 67:24, 73:6, 74:6, 74:8, 75:24, 76:1, 77:4, 77:8, 77:10, 79:2, 80:15, 80:25, 81:1, 82:4, 82:19, 82:22, 82:23, 84:20, 85:10, 85:12, 86:20, 89:5, 94:14, 94:16, 95:7, 96:15, 116:6, 116:9, 116:12, 122:22, 124:1, 126:21, 127:4, 130:9, 131:4, 131:6, 131:9</p> <p>park [28] - 3:8, 3:17, 3:21, 3:23, 30:14, 48:23, 49:7, 52:17, 53:2, 53:4, 53:12, 67:23, 73:2, 73:23, 75:4, 75:22, 77:3, 78:22, 80:23, 82:1, 94:13, 116:5, 116:7, 116:14, 124:6, 126:20, 127:3, 127:20</p> <p>Park's [1] - 52:12</p> <p>park's [3] - 5:10, 30:11, 73:20</p> <p>part [9] - 3:19, 23:16, 23:17, 25:14, 27:20, 73:18, 93:7, 93:8</p> <p>particular [25] - 13:22, 17:17, 17:21, 23:22, 26:13, 35:4, 38:24, 40:5, 49:13, 56:8, 62:25, 63:9, 66:4, 69:11, 70:11, 91:20, 92:5, 94:5, 102:15, 114:1, 114:5, 115:25, 122:3, 122:5, 122:10</p> <p>parties [1] - 12:21</p> <p>parts [3] - 25:22, 25:24, 25:25</p> <p>party [3] - 102:17, 104:20, 110:2</p> <p>past [1] - 115:7</p> <p>Patrick [2] - 97:1, 97:9</p> <p>PATRICK [2] - 97:4, 131:7</p> <p>Patzner [12] - 5:17, 5:24, 6:1, 6:18, 14:23, 57:17, 58:13, 72:11, 77:11, 80:10, 85:25, 126:17</p>	<p>PATZER [2] - 5:19, 131:2</p> <p>Paul [1] - 1:22</p> <p>pause [3] - 78:25, 114:16, 118:2</p> <p>pay [3] - 88:11, 117:17, 128:16</p> <p>PC [2] - 1:18, 86:15</p> <p>PCAP [11] - 79:15, 81:7, 108:16, 108:18, 109:16, 109:22, 110:6, 110:12, 112:6, 112:16, 112:19</p> <p>PCAPs [1] - 109:5</p> <p>peer [27] - 18:24, 19:1, 19:2, 22:1, 24:17, 25:21, 31:3, 38:1, 40:25, 41:9, 46:21, 49:21, 51:2, 54:17, 65:20, 82:13</p> <p>peer-to-peer [9] - 18:24, 19:1, 31:3, 38:1, 40:25, 41:9, 49:21, 51:2, 51:2, 65:20</p> <p>peers [11] - 19:16, 21:13, 21:18, 22:7, 22:8, 23:2, 24:18, 27:17, 27:18, 27:20</p> <p>pending [2] - 101:22, 114:2</p> <p>people [7] - 3:6, 22:11, 22:15, 111:16, 112:1, 126:1, 126:8</p> <p>per [4] - 24:4, 61:18, 62:14, 92:7</p> <p>percent [4] - 39:18, 95:3, 95:15, 96:11</p> <p>percentage [4] - 95:1, 95:11, 95:12, 96:6</p> <p>perfect [1] - 74:21</p> <p>perform [1] - 116:19</p> <p>period [8] - 56:17, 56:22, 56:25, 57:9, 67:2, 87:2, 111:15, 114:3</p> <p>permissible [3] - 51:1, 51:21, 52:2</p> <p>permission [1] - 105:2</p> <p>person [12] - 15:10, 15:16, 24:4, 39:6, 46:22, 70:13, 70:22, 71:4, 79:8, 79:16, 88:3, 123:15</p> <p>person's [1] - 39:3</p> <p>personal [9] - 58:9, 74:12, 83:1, 83:13, 85:13, 103:20, 104:7, 116:17, 117:1</p> <p>personally [2] - 16:4, 77:22</p> <p>persons [4] - 3:5, 10:8, 10:11, 32:25</p> <p>ph [1] - 62:23</p> <p>Philadelphia [1] - 26:24</p> <p>phone [2] - 31:20, 59:20</p> <p>physical [1] - 111:3</p> <p>physically [4] - 13:7, 13:17, 35:25, 119:2</p> <p>pick [3] - 15:24, 25:23, 113:12</p> <p>pictorial [1] - 15:5</p> <p>piece [8] - 78:15, 79:18, 79:22, 81:7, 81:15, 93:13, 93:14, 95:16</p> <p>pieces [3] - 81:17, 81:18, 81:19</p> <p>Pirate [4] - 8:24, 9:1, 9:4, 107:9</p> <p>PIRATE [1] - 9:2</p> <p>place [4] - 2:1, 14:13, 104:18, 109:19</p> <p>places [1] - 21:21</p>
<p>O</p> <p>object [4] - 52:17, 52:21, 80:21, 80:22</p> <p>objection [11] - 14:8, 48:23, 49:7, 52:9, 52:12, 53:12, 67:23, 74:7, 74:8, 80:17, 84:14</p> <p>Objection [1] - 51:4</p> <p>objections [2] - 73:2, 73:3</p> <p>obsolete [1] - 37:6</p> <p>occur [1] - 19:6</p> <p>occurred [4] - 27:4, 55:14, 108:11, 108:21</p> <p>October [2] - 100:11, 103:5</p> <p>OF [3] - 1:1, 1:11, 1:18</p> <p>offer [2] - 95:16, 112:3</p> <p>offered [1] - 11:17</p> <p>offhand [1] - 117:19</p> <p>Office [1] - 69:25</p> <p>office [8] - 17:1, 97:22, 98:12, 98:20, 98:23, 99:1, 104:25, 118:20</p> <p>officer [3] - 100:14, 101:1, 108:5</p> <p>offices [1] - 13:9</p> <p>OFFICES [1] - 1:18</p> <p>Official [1] - 1:21</p> <p>often [2] - 37:12, 87:4</p> <p>old [7] - 36:18, 36:19, 36:20, 36:21, 37:5, 37:17</p> <p>ON [1] - 38:8</p> <p>once [22] - 11:7, 11:10, 19:3, 22:22, 23:2, 23:12, 24:21, 24:23, 25:18, 28:9, 35:16, 48:4, 106:21, 106:22, 107:2, 107:5, 107:10, 107:13, 108:12, 112:10, 129:20, 130:6</p>	<p>P</p> <p>P-A-I-G-E [1] - 97:10</p> <p>PA [1] - 5:24</p>		<p>9</p>

<p>placing [1] - 48:23 Plains [1] - 1:16 plaintiff [7] - 2:7, 2:16, 3:11, 5:7, 5:17, 128:4, 128:8 Plaintiff [21] - 1:5, 1:15, 49:1, 49:10, 53:21, 68:3, 72:12, 72:23, 73:3, 73:7, 73:8, 74:19, 74:24, 82:2, 86:3, 86:6, 131:13, 131:13, 131:14, 131:14, 131:15 plaintiffs [3] - 30:20, 102:17, 102:21 Plaintiffs [6] - 30:24, 49:2, 49:4, 53:14, 53:17, 61:11 planned [2] - 7:15, 78:5 planning [2] - 7:20, 77:25 play [4] - 13:19, 80:5, 94:5 playable [7] - 81:6, 81:8, 81:9, 81:11, 81:16, 81:17, 93:5 played [1] - 93:10 player [1] - 93:5 plays [1] - 93:12 Plaza [1] - 1:22 point [4] - 48:13, 77:21, 110:1, 125:6 Policy [1] - 50:16 popular [1] - 22:16 pornography [1] - 98:14 port [50] - 47:8, 59:17, 59:18, 59:19, 59:25, 60:1, 60:3, 60:5, 60:8, 60:15, 60:16, 60:19, 60:21, 60:22, 60:23, 60:25, 61:2, 63:25, 64:7, 64:13, 64:16, 66:8, 66:12, 66:18, 66:19, 66:22, 67:4, 67:10, 67:12, 67:14, 68:23, 69:2, 83:8, 83:10, 83:11, 83:12, 84:21, 86:2, 86:9, 86:11, 86:13, 87:22, 89:13, 90:8, 90:20, 119:13, 119:15, 119:18, 119:19 portions [2] - 26:5 ports [7] - 47:9, 59:24, 60:17, 60:24, 68:17, 83:4, 89:21 position [2] - 7:2, 98:19 positive [2] - 37:10, 44:17 positives [4] - 37:21, 42:20, 44:13, 44:21 possible [12] - 17:24, 32:25, 35:18, 38:14, 40:17, 41:7, 79:8, 85:1, 85:25, 86:5, 86:7, 90:15 posthearing [2] - 127:7, 129:20 potential [1] - 41:4 practice [1] - 41:22 practices [2] - 52:13, 86:9 prefer [1] - 20:1 preparation [4] - 30:6, 54:2, 102:25, 103:24 prepare [1] - 4:3 prepared [3] - 3:23, 49:13, 107:5 present [3] - 42:24, 73:11, 104:19</p>	<p>preservation [1] - 43:25 preserve [3] - 10:25, 47:16, 108:22 preserved [6] - 11:16, 11:20, 11:24, 12:1, 12:25, 44:2 pretend [2] - 38:15, 88:3 prevent [2] - 37:13, 109:19 prevents [1] - 82:13 previous [3] - 26:9, 62:8, 119:12 previously [7] - 61:11, 61:16, 67:20, 68:1, 74:24, 80:10, 101:4 price [2] - 118:3, 118:5 Printer [1] - 31:3 printout [1] - 49:4 private [4] - 103:23, 107:25, 108:7, 118:24 problems [1] - 42:20 procedure [6] - 42:4, 42:14, 51:11, 79:3, 104:18, 116:18 procedures [3] - 52:5, 52:6, 102:13 proceeding [1] - 102:12 Proceedings [1] - 1:25 proceedings [5] - 26:20, 46:2, 78:25, 114:16, 118:2 process [26] - 10:5, 13:1, 13:5, 13:18, 14:14, 16:4, 16:20, 17:13, 17:15, 17:16, 17:19, 25:12, 27:19, 28:22, 35:13, 43:11, 48:3, 48:4, 48:5, 73:19, 78:6, 93:1, 105:2, 107:10, 107:23, 110:13 produce [3] - 28:25, 117:21, 117:25 produced [1] - 1:25 profession [1] - 6:20 professional [4] - 51:19, 97:18, 99:8, 110:5 proficient [1] - 102:12 profile [1] - 72:8 profiling [2] - 70:13, 71:4 program [10] - 7:19, 28:7, 49:5, 78:3, 78:4, 82:10, 82:15, 108:14, 108:16 programmer [2] - 7:20, 70:20 programming [4] - 70:19, 70:20, 78:1 programs [7] - 7:21, 44:22, 44:23, 44:25, 78:1, 102:7 prohibited [1] - 50:25 prohibiting [1] - 18:10 prohibition [1] - 49:20 proof [2] - 44:20, 44:25 proper [5] - 21:19, 21:20, 21:21, 48:5, 93:11 properly [1] - 44:7 proposed [1] - 43:14 prospective [1] - 73:17 protected [6] - 9:7, 9:10, 9:12, 13:23, 45:17, 107:4</p>	<p>protecting [1] - 33:4 protocol [1] - 50:3 protocols [1] - 44:11 prove [5] - 3:12, 11:8, 41:8, 93:12, 93:18 proven [3] - 45:4, 45:23, 60:17 proves [4] - 12:4, 93:7, 95:23 provide [21] - 8:5, 9:9, 30:1, 30:3, 34:10, 35:12, 99:8, 101:12, 101:21, 103:13, 103:20, 104:1, 104:6, 108:10, 108:16, 110:18, 112:15, 122:7, 122:17, 127:6 provided [12] - 10:9, 10:13, 13:20, 35:16, 55:11, 61:13, 101:9, 107:15, 112:11, 112:19, 115:10, 120:5 provider [7] - 49:15, 88:8, 88:11, 88:24, 88:25, 103:12, 105:14 providers [5] - 51:21, 83:20, 87:1, 88:9, 88:17 provides [1] - 8:12 providing [2] - 51:25, 63:2 proxy [52] - 82:24, 83:1, 83:4, 83:7, 83:14, 83:15, 83:17, 83:18, 83:19, 83:21, 83:22, 83:24, 83:25, 84:2, 84:7, 84:10, 84:13, 84:21, 84:22, 84:25, 85:2, 87:22, 87:25, 88:5, 88:13, 88:14, 88:20, 88:21, 88:22, 88:25, 89:12, 89:18, 89:20, 89:21, 89:25, 90:1, 90:3, 90:11, 90:15, 90:17, 122:24, 123:10, 123:20, 125:13, 125:14, 125:20, 125:23, 126:5, 126:8 PTAP [12] - 27:11, 27:12, 27:22, 27:23, 27:24, 28:1, 28:8, 28:9, 28:10, 28:17, 44:24 PTAPS [2] - 28:25, 43:16 public [3] - 50:25, 107:3, 107:16 publicly [3] - 7:5, 46:12, 49:18 purchase [1] - 28:13 purchased [2] - 108:25, 119:10 purpose [11] - 9:4, 9:11, 13:11, 13:13, 18:3, 18:10, 28:1, 73:15, 74:11, 79:3, 110:11 purposeful [1] - 56:20 push [1] - 78:22 pushed [1] - 93:9 put [5] - 5:14, 41:5, 78:24, 103:19, 109:19 puts [1] - 21:23 puzzle [1] - 21:23</p>	<p>quash [2] - 102:23, 127:19 questioning [1] - 52:16 questions [16] - 30:13, 74:2, 75:5, 75:20, 77:13, 89:5, 90:14, 91:19, 94:12, 96:15, 116:4, 124:1, 124:7, 126:19, 126:20 quite [1] - 37:11</p> <p style="text-align: center;">R</p> <p>random [18] - 16:6, 25:23, 35:21, 35:22, 45:19, 60:25, 61:2, 64:14, 83:4, 83:10, 88:18, 89:19, 89:21, 90:1, 90:9, 90:19, 119:18, 119:19 random-generated [2] - 60:25, 61:2 randomly [5] - 15:14, 15:24, 25:21, 89:13, 119:16 rather [2] - 129:15, 130:7 raw [5] - 59:7, 59:10, 59:13, 61:24, 62:1 RAW [1] - 59:11 read [9] - 12:2, 21:19, 30:7, 31:1, 51:14, 110:9, 116:22, 116:23, 117:8 reading [1] - 31:5 reads [1] - 11:4 ready [2] - 77:3, 107:10 real [4] - 12:4, 39:4, 106:8, 123:17 realistic [1] - 127:8 realizing [1] - 80:13 really [3] - 39:7, 81:3, 123:10 reason [5] - 4:18, 9:8, 11:8, 24:25, 35:21 receipt [3] - 117:20, 128:1, 128:25 receive [6] - 9:25, 32:6, 32:7, 50:6, 100:18, 128:18 received [3] - 3:24, 73:8, 131:15 Received [1] - 31:4 recent [1] - 101:22 Recess [1] - 76:3 recess [1] - 77:1 recommended [1] - 42:4 recommending [1] - 42:10 record [14] - 2:4, 5:23, 26:4, 26:8, 47:16, 53:16, 61:22, 74:25, 90:16, 97:8, 103:3, 108:22, 109:22, 127:20 recorded [3] - 1:25, 63:1, 109:23 recording [4] - 27:12, 27:15, 27:17, 28:6 recordings [1] - 44:24 records [1] - 104:25 recross [1] - 94:13 RECROSS [2] - 94:15, 131:6 RECROSS-EXAMINATION [2] - 94:15, 131:6</p>
		Q	
		<p>qualifications [3] - 73:17, 73:23, 74:12 qualified [1] - 52:13 quarter [1] - 69:14</p>	

10

<p>redirect [2] - 89:7, 124:2 REDIRECT [4] - 89:9, 124:4, 131:5, 131:10 refer [11] - 9:15, 19:15, 19:19, 19:25, 32:12, 37:3, 63:17, 68:8, 80:8, 94:4, 104:5 reference [6] - 38:8, 43:21, 55:9, 68:15, 69:24, 75:11 referred [2] - 62:7, 115:6 referring [8] - 36:22, 37:22, 37:23, 38:19, 66:13, 91:12, 114:8, 114:21 refers [6] - 34:1, 34:5, 34:7, 54:25, 62:19, 78:19 reflect [2] - 58:5, 103:7 reflects [1] - 58:13 refresh [3] - 75:3, 75:10, 75:12 refused [1] - 101:12 regarding [5] - 41:3, 52:5, 74:13, 85:3, 117:13 register [1] - 38:14 registered [1] - 88:18 registration [1] - 39:2 regular [1] - 72:16 regulated [1] - 12:18 reinforce [1] - 63:21 reinstall [2] - 65:7 reinstalled [2] - 64:24, 66:7 reiterate [1] - 74:11 relate [2] - 68:12, 102:1 related [8] - 9:16, 10:6, 42:21, 53:24, 55:5, 70:23, 98:15, 99:16 relates [4] - 29:3, 54:23, 60:6, 62:2 relating [2] - 44:15, 107:21 relationship [1] - 21:11 relevant [3] - 46:2, 96:5, 99:9 reliable [2] - 35:24, 36:2 rely [3] - 37:7, 37:9, 40:16 remain [3] - 65:23, 126:8, 126:12 remained [6] - 66:19, 67:2, 69:4, 99:18, 114:2, 116:1 remains [1] - 115:17 remember [4] - 7:22, 26:25, 27:6, 97:12 remove [1] - 82:7 renewal [1] - 118:3 rent [1] - 118:9 rented [4] - 117:14, 119:11, 124:12, 124:15 renting [2] - 106:18, 117:17 repeat [6] - 11:22, 80:23, 81:13, 84:18, 105:11, 119:25 rephrase [1] - 22:24 replaced [1] - 37:16 report [6] - 29:12, 30:7, 30:10, 66:20, 69:4, 69:8 Reporter [1] - 1:21 reporter [6] - 4:13, 8:25, 9:19,</p>	<p>127:25, 128:19, 129:1 reporting [3] - 31:6, 38:4 reports [2] - 39:13, 39:16 request [7] - 23:3, 23:8, 102:17, 104:20, 104:24, 105:2, 111:11 requested [2] - 29:1, 110:22 requests [1] - 21:9 require [2] - 103:16, 111:10 required [1] - 105:1 requires [1] - 103:19 reserves [1] - 91:4 residency [1] - 105:9 residential [2] - 105:14, 105:18 respect [1] - 72:11 respond [3] - 50:21, 105:5, 129:21 response [5] - 2:16, 105:9, 105:13, 105:14, 105:16 rest [2] - 66:19, 111:8 result [6] - 32:6, 35:5, 35:23, 39:2, 40:11, 60:10 resulted [1] - 35:7 retained [1] - 106:11 retrieve [1] - 19:23 returned [1] - 105:13 revealed [1] - 126:17 review [8] - 5:6, 53:23, 54:1, 75:9, 103:1, 103:25, 112:9, 128:18 reviewed [3] - 4:8, 112:10, 115:7 reviewing [2] - 49:14, 70:9 right-hand [2] - 68:20, 68:24 roof [1] - 29:22 roughly [3] - 45:10, 56:14, 101:18 router [1] - 87:3 run [3] - 43:10, 43:14, 124:10 running [6] - 29:20, 120:17, 121:11, 122:2, 124:20, 125:2</p>	<p>58:16, 64:21, 68:20, 69:1, 79:24, 81:4, 81:5, 117:24 secondary [1] - 13:1 seconds [6] - 63:14, 63:15, 79:25, 80:11, 80:16, 81:2 secret [2] - 19:10, 99:3 section [2] - 41:17, 65:14 sector [2] - 103:23, 108:7 security [1] - 77:19 see [15] - 4:4, 10:2, 19:7, 20:4, 28:8, 48:14, 58:11, 65:10, 85:1, 91:9, 94:21, 95:24, 96:11, 115:4, 115:17 seeder [1] - 111:24 seeing [1] - 112:13 seek [1] - 105:2 segment [1] - 15:1 segregation [2] - 13:13, 13:14 select [1] - 20:13 selected [1] - 107:16 selections [1] - 16:7 self [2] - 7:3, 77:19 self-employed [2] - 7:3, 77:19 send [1] - 40:23 sends [1] - 40:21 senior [2] - 6:21, 6:23 sense [3] - 4:5, 73:25, 109:15 sentence [1] - 89:17 separately [1] - 10:12 sequence [2] - 21:20, 21:22 series [1] - 124:7 serve [1] - 102:17 server [78] - 33:9, 33:10, 34:5, 34:7, 34:8, 34:12, 34:13, 34:15, 34:18, 35:12, 37:1, 50:13, 82:24, 83:1, 83:4, 83:7, 83:14, 83:15, 83:24, 83:25, 84:1, 84:2, 84:3, 84:7, 84:10, 84:13, 84:21, 84:23, 84:25, 85:2, 87:22, 87:25, 88:5, 88:13, 88:15, 88:20, 88:21, 88:25, 89:12, 89:20, 89:25, 90:1, 90:3, 90:11, 90:15, 90:17, 117:15, 118:9, 118:10, 118:14, 118:24, 118:25, 119:7, 119:22, 120:10, 120:18, 120:22, 121:10, 121:22, 122:2, 122:5, 122:24, 123:12, 123:13, 123:15, 123:16, 123:20, 125:13, 125:14, 125:20, 125:23, 126:5 server's [6] - 88:22, 107:20, 119:8, 120:11, 121:5 servers [52] - 29:21, 34:8, 34:9, 34:15, 34:16, 35:16, 37:2, 37:12, 40:12, 40:23, 43:10, 43:12, 49:20, 83:17, 83:18, 83:19, 83:22, 89:18, 89:21, 106:18, 106:19, 106:21, 106:22, 108:12, 108:13, 108:18, 110:18, 117:14, 117:18, 118:14, 118:15,</p>	<p>118:23, 119:6, 119:11, 119:14, 119:15, 119:17, 120:6, 120:7, 121:19, 122:9, 122:10, 123:5, 123:6, 123:11, 124:10, 124:15, 124:17, 125:3, 126:8 service [13] - 9:9, 51:21, 83:21, 83:23, 88:5, 88:9, 88:17, 99:3, 100:18, 108:4, 113:11, 113:15, 126:1 services [9] - 8:5, 38:18, 83:15, 88:7, 88:12, 88:13, 88:25, 118:10, 122:18 session [1] - 66:13 set [2] - 106:12, 107:2 shaking [1] - 27:18 share [5] - 9:8, 19:3, 20:9, 23:3, 49:24 shared [5] - 39:7, 40:22, 45:2, 45:5, 95:1 shares [1] - 60:7 sharing [22] - 9:12, 18:5, 18:12, 18:21, 18:24, 22:6, 22:8, 22:12, 23:2, 33:22, 34:11, 35:18, 35:19, 37:24, 38:1, 38:15, 48:14, 67:13, 96:12, 111:16, 111:25, 113:1 Sharing [1] - 31:3 sheriff's [5] - 97:22, 98:12, 98:20, 98:23, 99:1 shop [1] - 39:23 show [16] - 12:11, 30:14, 48:16, 48:19, 52:25, 53:1, 53:8, 57:11, 61:9, 62:16, 67:20, 74:23, 75:4, 92:4, 96:6, 114:13 showed [4] - 57:4, 57:8, 112:7, 112:24 showing [1] - 52:14 shown [2] - 45:23, 49:18 shows [8] - 59:13, 59:15, 59:17, 62:13, 67:4, 68:7, 93:15, 95:18 side [6] - 21:9, 55:8, 68:20, 68:24, 115:17 sides [1] - 20:25 sign [3] - 14:19, 14:21, 16:17 signed [2] - 124:16, 125:14 similar [4] - 15:21, 27:8, 31:21, 112:12 simply [3] - 73:17, 75:10, 123:15 simultaneously [2] - 9:21, 129:6 single [4] - 36:17, 37:2, 37:11, 59:6 sit [1] - 15:10 site [3] - 9:11, 9:13, 14:6 sites [5] - 8:17, 8:23, 8:24, 9:4, 10:1 sitting [2] - 13:9, 121:20 situation [6] - 86:7, 86:17, 86:21, 107:9, 123:4, 123:24 skill [1] - 82:10 slow [2] - 9:21, 37:11</p>
	<p style="text-align: center;">S</p>		
	<p>safe [1] - 45:1 safest [1] - 44:7 safety [1] - 44:10 sake [1] - 62:5 sample [3] - 28:5, 92:17, 119:21 satellites [1] - 29:22 save [1] - 10:25 scenario [6] - 35:7, 40:5, 86:1, 86:5, 121:13, 123:11 scenarios [1] - 106:9 schedule [2] - 127:5, 128:24 school [4] - 6:17, 6:19, 7:9, 77:15 screen [2] - 14:1, 112:12 search [2] - 8:20, 32:17 seated [3] - 2:11, 5:25, 77:2 second [14] - 14:14, 29:24, 39:25, 40:5, 48:17, 55:20,</p>		

<p>slowing [1] - 50:12</p> <p>small [1] - 93:8</p> <p>snapshot [1] - 110:7</p> <p>so-called [1] - 32:23</p> <p>so.. [1] - 115:3</p> <p>software [109] - 7:16, 7:18, 8:7, 12:3, 12:17, 17:25, 18:11, 18:14, 21:21, 21:22, 21:23, 22:22, 24:12, 27:8, 27:9, 28:10, 28:11, 28:13, 35:20, 36:12, 36:14, 39:14, 40:8, 44:22, 44:23, 44:25, 47:9, 47:10, 47:12, 47:13, 47:14, 47:16, 47:21, 47:24, 48:2, 59:15, 59:16, 59:17, 59:24, 59:25, 60:5, 60:8, 60:18, 60:19, 64:14, 64:24, 65:5, 65:6, 65:8, 65:9, 65:11, 65:12, 65:13, 65:18, 65:22, 66:2, 66:4, 67:1, 67:9, 67:10, 67:11, 67:12, 67:14, 77:22, 77:25, 78:2, 78:3, 82:25, 83:7, 83:21, 84:4, 84:22, 84:25, 88:21, 92:7, 96:14, 99:25, 106:3, 106:9, 106:13, 106:22, 106:23, 106:24, 107:2, 107:6, 107:14, 108:13, 108:20, 108:25, 109:3, 110:2, 113:5, 113:11, 118:19, 119:17, 120:17, 121:11, 121:25, 122:1, 122:3, 122:24, 124:10, 124:21, 125:10, 125:16</p> <p>Software [2] - 99:24</p> <p>softwares [1] - 118:18</p> <p>Soma [1] - 62:23</p> <p>someone [1] - 84:22</p> <p>sometimes [2] - 95:18, 126:9</p> <p>somewhere [4] - 16:25, 25:8, 29:7, 98:7</p> <p>sooner [2] - 129:15, 130:7</p> <p>sorry [18] - 11:13, 11:22, 16:12, 17:1, 19:21, 27:1, 29:6, 31:11, 42:16, 46:9, 54:7, 55:19, 56:19, 70:5, 77:16, 86:4, 119:24, 126:4</p> <p>sort [3] - 4:1, 13:25, 113:12</p> <p>sought [4] - 19:20, 19:22, 19:23</p> <p>source [2] - 109:3, 109:4</p> <p>Southern [2] - 101:23, 116:16</p> <p>space [2] - 46:8, 127:18</p> <p>spaces [2] - 46:18, 46:19</p> <p>speaker [1] - 70:18</p> <p>speaks [1] - 51:13</p> <p>special [3] - 28:7, 84:25, 98:16</p> <p>specialist [1] - 83:17</p> <p>specialized [2] - 51:6, 126:1</p> <p>specific [11] - 15:4, 31:22, 31:23, 33:1, 34:4, 38:17, 47:25, 79:13, 80:13, 83:23, 107:4</p> <p>specifically [1] - 49:14</p> <p>speed [2] - 22:13, 73:22</p> <p>spell [2] - 9:1, 97:7</p>	<p>spend [1] - 44:6</p> <p>spent [1] - 97:22</p> <p>spoliation [1] - 102:8</p> <p>Sponge [1] - 69:25</p> <p>spoof [1] - 40:15</p> <p>spoofed [1] - 40:19</p> <p>spoofs [1] - 44:14</p> <p>spot [3] - 46:8, 46:10, 46:23</p> <p>spreadsheets [1] - 112:12</p> <p>stage [1] - 78:7</p> <p>stamp [7] - 12:3, 12:4, 12:7, 12:11, 29:9, 29:13, 39:24</p> <p>stamped [1] - 12:14</p> <p>stamping [1] - 29:18</p> <p>stamps [1] - 12:17</p> <p>stand [3] - 5:18, 72:20, 97:2</p> <p>standard [6] - 27:13, 27:25, 28:11, 28:13, 29:5, 41:21</p> <p>stands [3] - 29:4, 32:10, 64:11</p> <p>start [10] - 17:17, 17:20, 25:12, 26:9, 48:1, 64:2, 64:9, 66:13, 79:1, 109:14</p> <p>started [4] - 7:3, 7:24, 97:24, 106:18</p> <p>starting [2] - 39:23, 97:18</p> <p>starts [4] - 8:10, 17:15, 36:14, 95:25</p> <p>state [5] - 2:4, 5:22, 97:7, 101:9, 104:24</p> <p>State [1] - 81:23</p> <p>statement [5] - 3:17, 4:19, 5:5, 49:6, 103:25</p> <p>STATES [2] - 1:1, 1:12</p> <p>States [3] - 26:21, 100:16, 100:25</p> <p>static [8] - 85:17, 85:19, 85:21, 87:9, 106:19, 118:16, 118:17, 123:9</p> <p>stay [3] - 3:7, 85:23, 87:2</p> <p>stayed [2] - 66:22, 115:22</p> <p>stays [3] - 85:22, 87:4, 89:24</p> <p>stenography [1] - 1:25</p> <p>step [9] - 8:15, 8:16, 10:4, 96:18, 105:1, 108:11, 111:9, 112:9, 126:22</p> <p>steps [7] - 41:1, 50:9, 96:20, 106:16, 109:19, 113:17, 126:25</p> <p>STEVEN [1] - 1:11</p> <p>still [10] - 7:11, 34:9, 37:7, 86:2, 86:14, 87:7, 87:11, 93:4, 93:5, 123:9</p> <p>stop [2] - 32:15, 96:12</p> <p>storage [1] - 16:20</p> <p>store [3] - 11:1, 27:24, 45:19</p> <p>stored [4] - 16:18, 16:25, 17:2, 17:11</p> <p>storing [1] - 39:15</p> <p>straight [1] - 4:20</p> <p>Street [1] - 1:19</p> <p>study [2] - 81:21, 81:23</p> <p>stuff [2] - 70:19, 109:19</p>	<p>subject [2] - 27:7, 50:15</p> <p>submissions [1] - 129:20</p> <p>submit [6] - 4:15, 102:16, 102:20, 128:24, 129:3, 129:20</p> <p>submitted [3] - 3:4, 3:12, 3:17</p> <p>submitting [1] - 129:5</p> <p>subparagraph [1] - 39:12</p> <p>Subpoena [1] - 50:16</p> <p>subpoena [12] - 50:22, 102:18, 103:14, 103:16, 103:19, 104:8, 104:25, 110:22, 111:11, 122:6</p> <p>subscriber [11] - 1:7, 50:10, 50:25, 103:21, 104:1, 105:6, 105:8, 105:17, 105:24, 111:11, 117:2</p> <p>subscriber's [3] - 88:23, 103:13, 104:11</p> <p>subscribers [6] - 50:17, 51:11, 51:20, 88:15, 104:7, 116:20</p> <p>subsequent [6] - 39:24, 57:24, 58:13, 58:24, 59:5, 113:17</p> <p>subsequently [1] - 125:17</p> <p>substance [1] - 3:11</p> <p>substantive [1] - 116:18</p> <p>substitute [1] - 3:5</p> <p>subtitle [1] - 43:4</p> <p>successful [4] - 14:21, 21:25, 111:15, 112:17</p> <p>successfully [1] - 23:15</p> <p>suggestion [1] - 4:13</p> <p>Suite [2] - 1:15, 1:22</p> <p>sum [1] - 3:10</p> <p>supplemental [1] - 102:21</p> <p>supplied [1] - 17:7</p> <p>support [3] - 73:13, 102:16, 102:21</p> <p>supporting [1] - 17:7</p> <p>supports [1] - 67:15</p> <p>supposed [1] - 35:20</p> <p>surfing [1] - 32:23</p> <p>suspected [2] - 41:22, 41:23</p> <p>sustained [1] - 51:8</p> <p>swarm [16] - 18:17, 18:19, 18:20, 22:7, 22:8, 48:8, 48:10, 48:12, 79:10, 79:11, 82:7, 93:23, 95:19, 96:2, 111:22, 123:14</p> <p>swarms [4] - 18:15, 22:15, 22:19, 69:11</p> <p>sworn [2] - 5:20, 97:5</p> <p>system [18] - 7:14, 32:4, 35:15, 36:12, 38:11, 43:6, 46:7, 57:5, 59:6, 64:25, 65:7, 66:24, 67:5, 70:14, 72:19, 106:12, 108:20, 122:24</p> <p>systems [1] - 32:1</p>	<p>tag [1] - 23:24</p> <p>takedown [4] - 32:14, 35:6, 35:8, 35:16</p> <p>Takedown [1] - 31:4</p> <p>talks [2] - 33:22, 40:14</p> <p>tape [4] - 11:12, 12:2, 16:21, 26:10</p> <p>target [2] - 17:17, 104:21</p> <p>task [1] - 43:20</p> <p>TCP [5] - 47:9, 59:17, 59:18, 59:19, 59:22</p> <p>teach [1] - 100:2</p> <p>teacher [1] - 99:20</p> <p>teaching [1] - 7:4</p> <p>technically [1] - 87:17</p> <p>technique [1] - 87:21</p> <p>technologies [1] - 37:16</p> <p>technology [13] - 5:8, 36:18, 36:19, 36:20, 36:22, 36:25, 37:4, 37:8, 37:9, 39:1, 40:3, 40:9</p> <p>ten [4] - 97:22, 116:9, 127:15, 127:16</p> <p>ten-page [1] - 127:16</p> <p>term [7] - 8:23, 29:3, 125:21, 125:23, 125:24, 125:25, 126:5</p> <p>terminating [1] - 50:12</p> <p>terms [3] - 19:14, 40:20, 63:12</p> <p>terrible [2] - 6:3, 97:13</p> <p>test [13] - 107:10, 111:19, 111:20, 112:17, 112:18, 117:13, 117:15, 120:1, 121:23, 122:23, 124:15, 124:16</p> <p>testified [6] - 5:21, 26:20, 89:11, 97:6, 101:3, 101:15</p> <p>testimony [18] - 3:10, 27:7, 54:2, 58:8, 58:11, 70:10, 73:18, 96:19, 101:9, 101:13, 101:19, 101:21, 101:22, 103:1, 103:24, 113:7, 115:14, 124:9</p> <p>testing [1] - 110:12</p> <p>tests [1] - 106:8</p> <p>THE [237] - 1:11, 1:15, 2:2, 2:11, 2:22, 2:24, 3:20, 4:9, 4:24, 5:1, 5:3, 5:14, 5:22, 5:24, 5:25, 6:4, 6:5, 6:10, 6:18, 14:23, 15:2, 15:6, 15:8, 15:9, 15:12, 15:14, 15:16, 15:19, 30:14, 30:17, 30:21, 32:11, 32:13, 32:16, 32:19, 32:21, 32:22, 33:2, 33:5, 33:6, 33:12, 33:16, 33:18, 33:19, 33:21, 33:24, 34:1, 34:3, 34:5, 34:7, 34:8, 34:12, 34:13, 34:14, 34:20, 34:21, 34:23, 34:24, 48:18, 48:21, 48:25, 49:7, 49:9, 49:11, 51:8, 51:12, 51:16, 52:11, 52:17, 52:20, 53:1, 53:6, 53:12, 53:14, 53:18, 53:20, 54:7, 55:21, 57:17, 57:22, 57:23, 58:1, 58:2, 58:10, 58:15, 58:16, 58:18, 58:19,</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>58:22, 58:23, 59:1, 59:2, 59:3, 59:4, 59:7, 59:9, 59:10, 59:11, 59:12, 59:13, 59:16, 59:18, 59:19, 59:21, 59:23, 60:2, 60:4, 60:9, 60:12, 60:13, 60:15, 60:20, 60:22, 60:23, 60:25, 61:1, 61:4, 61:7, 62:5, 62:9, 63:11, 63:14, 63:15, 64:9, 67:22, 67:25, 72:11, 72:14, 72:15, 72:17, 72:18, 72:21, 72:22, 73:2, 73:7, 73:15, 73:20, 74:7, 74:9, 74:15, 74:19, 74:22, 75:1, 75:4, 75:21, 75:25, 76:2, 77:2, 77:5, 78:22, 79:1, 80:10, 80:14, 80:19, 82:1, 82:3, 82:18, 82:21, 84:17, 85:9, 85:11, 85:25, 86:4, 86:5, 86:10, 86:11, 86:14, 86:16, 86:18, 86:19, 89:6, 89:16, 89:20, 89:23, 89:24, 90:1, 90:3, 90:4, 90:5, 90:6, 91:11, 91:13, 91:14, 94:13, 95:3, 95:5, 95:6, 96:3, 96:8, 96:9, 96:10, 96:16, 96:18, 96:22, 96:25, 97:3, 97:7, 97:9, 97:11, 114:15, 116:5, 116:7, 116:10, 117:7, 117:22, 117:23, 117:24, 122:15, 122:16, 122:19, 122:20, 122:21, 124:2, 125:1, 125:5, 126:20, 126:22, 126:24, 127:1, 127:3, 127:5, 127:12, 127:14, 127:16, 128:3, 128:7, 128:13, 128:21, 128:23, 129:7, 129:10, 129:13, 129:18, 129:22, 129:25, 130:2, 130:5</p> <p>themselves [1] - 42:25</p> <p>theoretically [1] - 124:11</p> <p>therefore [1] - 50:24</p> <p>third [4] - 12:21, 50:15, 102:17, 110:2</p> <p>third-party [2] - 102:17, 110:2</p> <p>thoughts [1] - 43:7</p> <p>three [5] - 27:5, 46:21, 58:21, 83:16, 97:21</p> <p>Thrones [1] - 22:18</p> <p>throughout [4] - 65:23, 66:19, 67:2, 69:4</p> <p>tiles [1] - 107:16</p> <p>Title [1] - 55:8</p> <p>title [26] - 10:17, 22:12, 25:17, 26:2, 26:6, 31:1, 50:16, 55:10, 55:11, 55:12, 61:20, 62:14, 62:18, 62:25, 63:9, 92:8, 92:20, 92:21, 93:21, 93:23, 93:24, 107:11, 107:13, 107:19</p> <p>titles [16] - 8:10, 8:11, 8:17, 8:22, 26:17, 43:21, 55:23, 62:11, 62:12, 70:6, 70:23, 71:1, 92:6, 92:16, 92:19, 108:10</p> <p>Tobacco [1] - 99:5</p> <p>today [7] - 5:10, 53:24, 85:13, 102:22, 106:4, 113:8, 128:24</p> <p>today's [5] - 30:6, 54:2, 70:10,</p>	<p>103:1, 103:24</p> <p>together [1] - 21:23</p> <p>tomorrow [2] - 4:2, 128:15</p> <p>took [4] - 2:1, 7:19, 72:20, 107:3</p> <p>top [4] - 54:21, 56:2, 56:4, 64:16</p> <p>topic [1] - 101:13</p> <p>torrent [45] - 8:21, 9:14, 9:15, 10:7, 10:8, 18:21, 19:8, 19:12, 19:19, 19:25, 20:1, 20:2, 20:5, 20:12, 20:13, 21:2, 21:16, 21:17, 22:16, 22:22, 23:3, 23:22, 23:23, 24:14, 24:20, 25:15, 27:21, 31:22, 31:23, 33:1, 33:3, 34:1, 37:1, 55:1, 61:18, 65:11, 69:11, 70:14, 78:19, 79:5, 81:8, 81:16, 95:15, 107:8</p> <p>torrents [1] - 70:21</p> <p>total [1] - 22:2</p> <p>totality [1] - 109:12</p> <p>trace [2] - 122:8, 122:12</p> <p>tracker [6] - 35:20, 36:18, 36:19, 36:20, 37:3, 38:10</p> <p>trackers [3] - 32:20, 32:23, 38:4</p> <p>tracking [2] - 36:22, 47:15</p> <p>trading [1] - 24:23</p> <p>traffic [1] - 108:18</p> <p>train [1] - 99:12</p> <p>training [3] - 7:1, 7:4, 7:6</p> <p>transacting [1] - 123:14</p> <p>transaction [4] - 22:23, 27:13, 27:16, 54:15</p> <p>transactions [3] - 27:23, 61:17, 112:7</p> <p>TRANSCRIPT [1] - 1:11</p> <p>Transcript [1] - 1:25</p> <p>transcript [9] - 4:14, 5:6, 48:20, 127:6, 128:2, 128:14, 128:18, 129:1, 129:13</p> <p>transfer [1] - 62:19</p> <p>transferred [1] - 119:21</p> <p>transmit [1] - 123:16</p> <p>trial [2] - 17:5, 101:6</p> <p>Trojan [1] - 88:1</p> <p>true [12] - 11:16, 18:14, 22:15, 23:19, 23:22, 42:13, 44:10, 45:22, 46:6, 48:13, 62:13, 104:15</p> <p>TRUST [1] - 12:9</p> <p>trust [1] - 12:10</p> <p>truth [1] - 51:10</p> <p>try [4] - 41:1, 41:5, 41:14, 130:6</p> <p>trying [4] - 2:12, 19:23, 22:19, 24:21</p> <p>turn [3] - 50:17, 87:3</p> <p>turned [1] - 115:11</p> <p>two [12] - 10:7, 10:11, 13:6, 15:11, 19:15, 29:20, 43:19, 54:4, 60:24, 63:12, 80:11, 80:16</p> <p>types [1] - 106:24</p>	<p>typically [3] - 73:25, 83:24, 128:7</p> <p>U</p> <p>ultimately [1] - 21:25</p> <p>under [6] - 41:17, 41:25, 43:3, 50:25, 62:16, 65:6</p> <p>understandings [1] - 72:9</p> <p>unique [5] - 9:15, 23:19, 60:2, 60:18, 93:6</p> <p>unit [4] - 97:23, 98:9, 98:16, 100:18</p> <p>UNITED [2] - 1:1, 1:12</p> <p>United [3] - 26:21, 100:16, 100:25</p> <p>universal [2] - 75:17</p> <p>Universal [1] - 29:4</p> <p>university [1] - 39:22</p> <p>University [7] - 5:9, 30:7, 32:3, 35:3, 81:23, 113:8, 113:21</p> <p>unless [4] - 5:11, 50:18, 73:20, 125:8</p> <p>unlikely [4] - 46:22, 60:7, 67:8, 67:13</p> <p>unlimited [1] - 85:4</p> <p>up [16] - 6:2, 6:11, 8:25, 20:21, 26:15, 30:11, 30:13, 73:22, 77:13, 86:2, 96:1, 106:12, 107:2, 112:14, 113:12, 120:1</p> <p>upload [4] - 18:4, 48:5, 118:18, 120:21</p> <p>uploaded [5] - 17:23, 18:5, 18:7, 107:8, 108:14</p> <p>uploading [3] - 18:10, 111:17, 111:18</p> <p>uploads [1] - 48:2</p> <p>US [3] - 1:5, 99:1, 100:18</p> <p>user [9] - 41:23, 47:7, 49:5, 72:9, 83:23, 85:2, 87:12, 87:22, 88:20</p> <p>user's [1] - 49:20</p> <p>users [9] - 18:8, 38:5, 47:12, 50:5, 70:11, 83:18, 85:13, 88:6, 123:20</p> <p>uses [2] - 83:24, 90:4</p> <p>UTC [9] - 29:3, 29:11, 29:15, 54:11, 54:13, 54:22, 62:17, 75:11, 75:17</p> <p>V</p> <p>value [3] - 19:9, 95:1, 95:25</p> <p>various [7] - 7:21, 19:11, 20:10, 47:9, 47:14, 77:20, 78:1</p> <p>verbiage [1] - 107:5</p> <p>verification [24] - 11:19, 13:1, 13:5, 13:10, 13:14, 13:18, 14:14, 14:21, 14:22, 16:22, 16:24, 17:6, 17:16, 17:19, 17:20, 23:14, 25:12, 35:13,</p>	<p>36:8, 42:11, 78:7, 93:1, 107:23</p> <p>verified [10] - 13:16, 14:18, 14:20, 24:24, 25:15, 35:19, 36:5, 36:7, 45:17, 45:20</p> <p>verifier [1] - 13:22</p> <p>verify [19] - 10:12, 12:21, 14:9, 15:25, 16:13, 20:14, 23:10, 28:1, 28:22, 29:19, 29:23, 39:17, 42:7, 43:1, 45:6, 106:2, 106:12, 110:11</p> <p>verifying [8] - 15:10, 20:16, 25:15, 29:17, 41:24, 42:17, 43:20, 44:22</p> <p>Verizon [11] - 49:16, 49:19, 50:16, 50:24, 51:5, 51:6, 51:7, 91:4, 103:25, 104:6</p> <p>Verizon's [2] - 49:5, 52:13</p> <p>versa [1] - 21:10</p> <p>version [12] - 47:10, 59:15, 59:16, 60:6, 63:24, 65:4, 65:6, 65:10, 65:11, 66:1, 66:4, 82:4</p> <p>versions [1] - 65:17</p> <p>via [3] - 110:19, 111:5, 112:11</p> <p>viable [1] - 128:20</p> <p>vice [1] - 21:10</p> <p>video [22] - 11:12, 13:19, 13:20, 14:25, 15:1, 15:3, 15:7, 15:9, 16:2, 16:3, 16:14, 24:20, 27:17, 63:11, 63:12, 94:7, 95:4, 96:5, 96:6, 107:5</p> <p>videos [2] - 15:11, 16:5</p> <p>videotape [3] - 28:4, 28:5, 28:6</p> <p>view [2] - 10:8, 13:25</p> <p>virtual [19] - 106:18, 117:15, 117:17, 118:9, 118:19, 118:23, 118:24, 118:25, 119:6, 119:7, 119:8, 119:14, 119:15, 120:18, 120:22, 121:21, 122:2, 123:5, 123:7</p> <p>virus [1] - 88:1</p> <p>visually [1] - 14:9</p> <p>voice [2] - 6:2, 6:11</p> <p>volume [1] - 11:6</p> <p>VPN [4] - 83:20, 118:23, 121:17, 122:11</p> <p>VPing [1] - 123:6</p> <p>vs [1] - 2:3</p> <p>W</p> <p>wait [4] - 75:7, 89:20, 128:10, 130:5</p> <p>walk [1] - 6:10</p> <p>warning [1] - 51:25</p> <p>Washington [8] - 5:9, 30:7, 32:4, 35:3, 81:23, 113:8, 113:21</p> <p>watch [3] - 15:13, 22:2, 28:6</p> <p>web [2] - 47:25, 122:17</p> <p>week [3] - 22:18, 128:22, 128:23</p> <p>well-known [2] - 8:17, 8:20</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>White ^[1] - 1:16</p> <p>whole ^[5] - 15:13, 16:11, 79:10, 79:11, 94:21</p> <p>widely ^[1] - 99:25</p> <p>WiFi ^[3] - 46:8, 46:10, 46:22</p> <p>wiping ^[1] - 102:7</p> <p>Wireshark ^[2] - 108:15, 109:1</p> <p>witness ^[14] - 5:20, 49:3, 51:5, 52:25, 53:8, 55:20, 61:6, 61:11, 73:12, 74:23, 75:20, 96:23, 101:4, 119:13</p> <p>Witness ^[2] - 96:20, 126:25</p> <p>WITNESS ^[64] - 5:24, 6:4, 15:2, 15:8, 15:12, 15:16, 32:13, 32:19, 32:22, 33:5, 33:12, 33:18, 33:21, 34:1, 34:5, 34:8, 34:13, 34:20, 34:23, 57:22, 58:1, 58:15, 58:18, 58:22, 59:1, 59:3, 59:7, 59:10, 59:12, 59:16, 59:19, 59:23, 60:4, 60:12, 60:15, 60:22, 60:25, 61:4, 62:9, 63:14, 72:14, 72:17, 72:21, 80:14, 82:3, 85:11, 86:4, 86:10, 86:14, 86:18, 89:20, 89:24, 90:3, 90:5, 91:13, 95:5, 96:8, 96:10, 97:9, 117:23, 122:16, 122:20, 125:5, 126:24</p> <p>witness's ^[1] - 74:12</p> <p>witnesses ^[7] - 3:18, 4:20, 5:7, 5:14, 119:12, 127:1, 127:3</p> <p>word ^[7] - 8:18, 15:22, 18:25, 20:19, 40:19, 70:21, 75:11</p> <p>words ^[13] - 9:20, 29:16, 33:9, 37:15, 47:7, 47:23, 48:6, 71:1, 91:4, 102:7, 108:17, 125:9, 125:25</p> <p>works ^[6] - 8:8, 8:22, 27:8, 27:9, 84:3, 84:10</p> <p>world ^[1] - 100:1</p> <p>worldwide ^[3] - 44:19, 44:20, 45:3</p> <p>wound ^[1] - 86:2</p> <p>write ^[3] - 11:6, 127:17, 129:14</p> <p>written ^[8] - 3:17, 11:5, 11:9, 12:5, 12:6, 12:12, 18:2, 55:3</p>	<p>YORK ^[2] - 1:1, 11:13</p> <p>York ^[5] - 1:16, 1:19, 1:23, 101:23, 116:16</p> <p>YORM ^[5] - 11:1, 11:3, 11:4, 11:11, 26:10</p> <p>yourself ^[1] - 7:6</p>
Z	
	<p>zero ^[4] - 29:10, 45:8, 63:17, 95:18</p> <p>zeros ^[7] - 25:7, 25:8, 25:9, 80:8, 80:9, 93:6</p> <p>zone ^[2] - 29:10, 54:13</p> <p>zones ^[1] - 29:11</p>
X	
X-Art ^[1] - 69:15	
Y	
<p>year ^[7] - 7:19, 7:22, 98:8, 100:5, 100:14, 101:1, 118:3</p> <p>years ^[10] - 7:9, 27:5, 37:17, 42:10, 97:20, 97:22, 98:3, 98:5, 98:6</p> <p>yellow ^[10] - 31:19, 31:22, 32:17, 33:6, 33:8, 38:16, 38:20, 38:23</p> <p>yesterday ^[1] - 3:24</p>	